Filed by:
G. Scott Shepherd, Sr. Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3807 - GShepherd@sbasite.com

January 25, 2022

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: **Tower Share Application**
3114 Albany Ave., West Hartford, CT
Latitude: 41.796802
Longitude: -72.796830
Dish Site# BOBDL00129A

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at **3114 Albany Ave., West Hartford**, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 MHz antennas and six (6) RRUs, at the 100-foot level of the existing 309-foot monopole tower, one (1) Fiber cables will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7'x 5' lease area. Included are plans by B+T Group, dated December 9, 2021 Exhibit 10. Also included is a Structural Analysis prepared by TES, dated October 26, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit 8. This facility was approved by the Town of West Hartford Special Use Permit# 903 (7/5/00). Please see attached Exhibit 6.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Mayor Shari Cantor for the Town of West Hartford, Eric Prause, Brittany MacGilpin, Zoning Enforcement Officer and to the property owner, Educational Media Foundation. Separate notice is not being sent to the tower owner, as it belongs to SBA.

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the tower is 309-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 100-feet.

2. The proposed modifications will not result in the increase of the site boundary as depicted on the attached site plan.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligent.

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 28.07% as evidenced by Exhibit 7.

Connecticut General Statutes 16-50aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, Dish Wireless LLC respectfully indicates that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing monopole has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included as Exhibit 8.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this support tower in East Granby. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a Letter of Intent is included as Exhibit 2, authorizing Dish Wireless LLC to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 100-foot level of the existing 309-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit 7, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish Wireless LLC will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Intent has been provided by the owner to assist Dish Wireless LLC with this tower sharing application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish Wireless LLC proposed loading.

Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing guyed tower. Dish Wireless LLC intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through East Granby.

Sincerely,

Scott Shepherd
Site Development Specialist II
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3807 + T
508.366.2610 + F
508.868.6000 + C
GShepherd@sbasite.com

Attachments:

cc: Shari Cantor, Mayor / with attachments
West Hartford Town Hall, 50 So. Main St., Room 214
West Hartford, CT 06107
Brittany MacGilpin, Zoning Enforcement Officer / with attachments
West Hartford Town Hall, 50 So. Main St., Room 214
West Hartford, CT 06107
Educational Media Foundation / with attachments
5700 West Oak Blvd., Rocklin, CA 95765 (SBA address on file)

EXHIBIT LIST

Exhibit 1	Copy of Check	X
Exhibit 2	Letter of Intent to Allow Shared Use of the Existing SBA Telecommunications Site	X
Exhibit 3	Notification Receipts	x
Exhibit 4	Property Card	x
Exhibit 5	Property Map	x
Exhibit 6	Original Zoning Approval	Town of West Hartford Special Use Permit# 903 (7/5/00)
Exhibit 7	EME Report	EBI Consulting 12/28/21
Exhibit 8	Structural Analysis	TES 10/26/21
Exhibit 9	Mount Analysis	B+T Group 10/20/21
Exhibit 10	Construction Drawings	B+T Group 12/9/21

EXHIBIT 1

Copy of check

EXHIBIT 2
Letter of Intent

January 25, 2022

Melanie A. Bachman
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: **Notice of Intent to Allow Shared Use of the Existing SBA Telecommunications Site**
Location: **3114 Albany Ave., West Hartford, CT**
Dish Wireless Site No: BOBDL00129A
Site No: CT15879-A

Dear Ms. Bachman:

Please let the following serve as Evidence of Intent to allow Dish Wireless' shared use of the existing SBA telecommunications site at **3114 Albany Ave., West Hartford, CT**.

SBA Properties, LLC ("Owner") and Dish Wireless ("Tenant") are entering into a Site Lease Agreement. Tenant will be provided ground space within the existing site compound for its base station equipment and space at the height of 100' for antennas and associated equipment.

Thank you,

Rick Woods
Site Development Manager
SBA COMMUNICATIONS CORPORATION
134 Flanders Road, Suite 125
Westboro, MA 01581

508.251.0720 x3800 + T
508.366.2610 + F
508.614.0389 + C
rwoods@sbasite.com

EXHIBIT 3

Fedex Labels

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

FedEx

TRACK ANOTHER SHIPMENT

775852556963

ADD NICKNAME

ON TIME

Scheduled delivery:
Wednesday, 1/26/2022 before 10:30 am

PICKED UP
FRAMINGHAM, MA

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods

134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Melanie A. Bachman Exec. Dir
Connecticut Siting Council

Ten Franklin Square
NEW BRITAIN, CT US 06051
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
Local Scan Time

Tuesday, January 25, 2022

3:27 PM	FRAMINGHAM, MA	Picked up
3:20 PM	WESTBOROUGH, MA	Picked up Tendered at FedEx Office
1:28 PM		Shipment information sent to FedEx

Expand History

Shipment Facts

TRACKING NUMBER	SERVICE	WEIGHT
775852556963	FedEx Priority Overnight	2 lbs / 0.91 kgs
TOTAL PIECES	**TOTAL SHIPMENT WEIGHT**	**TERMS**
1	2 lbs / 0.91 kgs	Shipper
SHIPPER REFERENCE	**PACKAGING**	**SPECIAL HANDLING SECTION**
10-56-92009-6089	FedEx Pak	Deliver Weekday
ACTUAL PICK UP	**STANDARD TRANSIT**	**SCHEDULED DELIVERY**
1/25/22	1/26/22 before 10:30 am	1/26/22 before 10:30 am

All (30) Inbound (11) Outbound (19) Watch list (0)

After printing this label:
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FedEx

TRACK ANOTHER SHIPMENT

775852602988

ADD NICKNAME

ON TIME

Scheduled delivery:
Wednesday, 1/26/2022 before 10:30 am

PICKED UP
FRAMINGHAM, MA

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods

134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Shari Cantor, Room 214
West Hartford Town Hall

Mayor
WEST HARTFORD, CT US 06107
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
Local Scan Time

Tuesday, January 25, 2022

3:26 PM	FRAMINGHAM, MA	Picked up
3:20 PM	WESTBOROUGH, MA	Picked up Tendered at FedEx Office
1:30 PM		Shipment information sent to FedEx

Expand History

Shipment Facts

TRACKING NUMBER	SERVICE	WEIGHT
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TOTAL PIECES	**TOTAL SHIPMENT WEIGHT**	**TERMS**
1	0.5 lbs / 0.23 kgs	Shipper
SHIPPER REFERENCE	**PACKAGING**	**SPECIAL HANDLING SECTION**
10-56-92009-6089	FedEx Envelope	Deliver Weekday
ACTUAL PICK UP	**STANDARD TRANSIT**	**SCHEDULED DELIVERY**
1/25/22	1/26/22 before 10:30 am	1/26/22 before 10:30 am

All (30) Inbound (11) Outbound (19) Watch list (0)

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FedEx

TRACK ANOTHER SHIPMENT

775852625393

ADD NICKNAME

ON TIME

Scheduled delivery:
Wednesday, 1/26/2022 before 10:30 am

PICKED UP
FRAMINGHAM, MA

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Brittany MacGilpin
West Hartford Town Hall
Zone Enforcement Officer
WEST HARTFORD, CT US 06107
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
Local Scan Time

Tuesday, January 25, 2022

3:26 PM	FRAMINGHAM, MA	Picked up
3:20 PM	WESTBOROUGH, MA	Picked up Tendered at FedEx Office
1:31 PM		Shipment information sent to FedEx

Expand History

Shipment Facts

TRACKING NUMBER	SERVICE	WEIGHT
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TOTAL PIECES	**TOTAL SHIPMENT WEIGHT**	**TERMS**
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SHIPPER REFERENCE	**PACKAGING**	**SPECIAL HANDLING SECTION**
10-56-92009-6089	FedEx Envelope	Deliver Weekday
ACTUAL PICK UP	**STANDARD TRANSIT**	**SCHEDULED DELIVERY**
1/25/22	1/26/22 before 10:30 am	1/26/22 before 10:30 am

All (30) Inbound (11) Outbound (19) Watch list (0)

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FedEx

TRACK ANOTHER SHIPMENT

775852657182

ADD NICKNAME

ON TIME

Scheduled delivery:
Wednesday, 1/26/2022 before 10:30 am

PICKED UP
FRAMINGHAM, MA

GET STATUS UPDATES

FROM
SBA COMMUNICATIONS CORPORATION
Rick Woods
134 Flanders Rd
Suite 125
WESTBOROUGH, MA US 01581
508-614-0389

TO
Education Media Foundation
5700 West Oak Blvd
ROCKLIN, CA US 95765
508-251-0720

MANAGE DELIVERY

Travel History | Shipment Facts

Travel History

TIME ZONE
Local Scan Time

Tuesday, January 25, 2022

3:26 PM	FRAMINGHAM, MA	Picked up
3:20 PM	WESTBOROUGH, MA	Picked up Tendered at FedEx Office
1:32 PM		Shipment information sent to FedEx

Expand History

Shipment Facts

TRACKING NUMBER	SERVICE	WEIGHT
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TOTAL PIECES	**TOTAL SHIPMENT WEIGHT**	**TERMS**
1	0.5 lbs / 0.23 kgs	Shipper
SHIPPER REFERENCE	**PACKAGING**	**SPECIAL HANDLING SECTION**
10-56-92009-6089	FedEx Envelope	Deliver Weekday
ACTUAL PICK UP	**STANDARD TRANSIT**	**SCHEDULED DELIVERY**
1/25/22	1/26/22 before 10:30 am	1/26/22 before 10:30 am

All (30) Inbound (11) Outbound (19) Watch list (0)

EXHIBIT 4

Property Card

3114 ALBANY AVENUE

Location	3114 ALBANY AVENUE	**Mblu**	A2/ 0031/ 3114/ /
Parcel ID	0031 2 3114 0001	**Owner**	EDUCATIONAL MEDIA FOUNDATION
Assessment	$434,910	**Appraisal**	$621,300
Vision Id #	402	**Building Count**	6

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$236,700	$384,600	$621,300
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$165,690	$269,220	$434,910

Owner of Record

Owner	EDUCATIONAL MEDIA FOUNDATION	**Sale Price**	$600,000
Co-Owner		**Certificate**	
Address	5700 WEST OAKS BOULEVARD ROCKLIN, CA 95765	**Book & Page**	4884/0163
		Sale Date	11/04/2014
		Instrument	Q

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
EDUCATIONAL MEDIA FOUNDATION	$600,000		4884/0163	Q	11/04/2014
MARLIN TOWER LLC	$0	1	2810/0050	U	12/19/2001
MARLIN BROADCASTING LLC	$107,500	1	2580/0300	U	08/03/2000
MARLIN BROADCASTING INC	$130,000	1	2309/0253	U	05/26/1998
GREATER HARTFORD	$0	1	0472/0900	U	

Building Information

Building 1 : Section 1

Building Photo

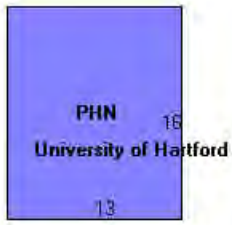
Year Built: 1960
Living Area: 208
Replacement Cost: $32,340
Building Percent Good: 59
Replacement Cost Less Depreciation: $19,100

Building Attributes	
Field	**Description**
STYLE	Telephone Exchange
MODEL	Comm/Ind
Grade	C 1.00
Stories:	1
Occupancy	
Exterior Wall 1	Concrete Block
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Comp - Shingle
Interior Wall 1	Typical
Interior Wall 2	
Floor Type	Concrete Slab
Floor Cover	None
Heating Fuel	Typical
Heating Type	None
AC Type	None
As Built Use	PHON
Bldg Use	Commercial
Num of Bedrooms	
Total Baths	
Type	01
Wet Sprinkler	
Dry Sprinkler	
1st Floor Use:	
Class	Class D
Frame Type	Conc Reinf
Plumbing	LIGHT
Ceiling	Not Applicable
Group1	IND
Wall Height	8.00
Adjustment	

Building Photo

(http://images.vgsi.com/photos/WestHartfordCTPhotos//\00\00\02\20.JPG)

Building Layout



(http://images.vgsi.com/photos/WestHartfordCTPhotos//Sketches/402_402

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
PHN	TELEPHONE EXCHANGE	208	208
		208	208

Building 2 : Section 1

Year Built: 2002
Living Area: 800

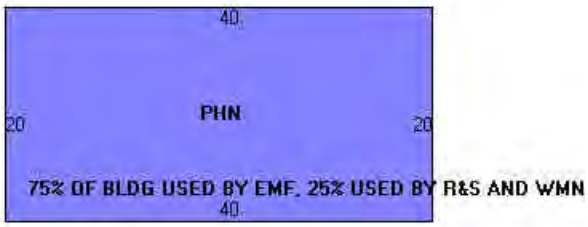
Replacement Cost: $124,432
Building Percent Good: 81
Replacement Cost Less Depreciation: $100,800

Building Attributes : Bldg 2 of 6	
Field	**Description**
STYLE	Telephone Exchange
MODEL	Comm/Ind
Grade	C 1.00
Stories:	1
Occupancy	1.00
Exterior Wall 1	Concrete Block
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Floor Type	
Floor Cover	
Heating Fuel	
Heating Type	
AC Type	
As Built Use	
Bldg Use	Commercial
Num of Bedrooms	
Total Baths	
Type	
Wet Sprinkler	
Dry Sprinkler	
1st Floor Use:	
Class	
Frame Type	
Plumbing	
Ceiling	
Group1	
Wall Height	0.00
Adjustment	

Building Photo

(http://images.vgsi.com/photos/WestHartfordCTPhotos//default.jpg)

Building Layout



(http://images.vgsi.com/photos/WestHartfordCTPhotos//Sketches/402_310

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
PHN	TELEPHONE EXCHANGE	800	800
		800	800

Building 3 : Section 1

Year Built: 2002
Living Area: 240
Replacement Cost: $37,268
Building Percent Good: 81

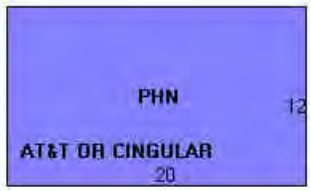
Replacement Cost
Less Depreciation: $30,200

Building Attributes : Bldg 3 of 6	
Field	**Description**
STYLE	Telephone Exchange
MODEL	Comm/Ind
Grade	C 1.00
Stories:	1
Occupancy	1.00
Exterior Wall 1	Concrete Block
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Floor Type	
Floor Cover	
Heating Fuel	
Heating Type	
AC Type	
As Built Use	
Bldg Use	Commercial
Num of Bedrooms	
Total Baths	
Type	
Wet Sprinkler	
Dry Sprinkler	
1st Floor Use:	
Class	
Frame Type	
Plumbing	
Ceiling	
Group1	
Wall Height	0.00
Adjustment	

Building Photo

(http://images.vgsi.com/photos/WestHartfordCTPhotos//default.jpg)

Building Layout



(http://images.vgsi.com/photos/WestHartfordCTPhotos//Sketches/402_310

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
PHN	TELEPHONE EXCHANGE	240	240
		240	240

Building 4 : Section 1

Year Built: 2002
Living Area: 360
Replacement Cost: $56,056
Building Percent Good: 81
Replacement Cost
Less Depreciation: $45,400

Building Attributes : Bldg 4 of 6	
Field	**Description**
STYLE	Telephone Exchange
MODEL	Comm/Ind
Grade	C 1.00
Stories:	1
Occupancy	1.00
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Floor Type	
Floor Cover	
Heating Fuel	
Heating Type	
AC Type	
As Built Use	
Bldg Use	Commercial
Num of Bedrooms	
Total Baths	
Type	
Wet Sprinkler	
Dry Sprinkler	
1st Floor Use:	
Class	
Frame Type	
Plumbing	
Ceiling	
Group1	
Wall Height	0.00
Adjustment	

Building Photo

(http://images.vgsi.com/photos/WestHartfordCTPhotos//default.jpg)

Building Layout

(http://images.vgsi.com/photos/WestHartfordCTPhotos//Sketches/402_310

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
PHN	TELEPHONE EXCHANGE	360	360
		360	360

Building 5 : Section 1

Year Built:	2002
Living Area:	165
Replacement Cost:	$25,718
Building Percent Good:	81
Replacement Cost Less Depreciation:	$20,800

Building Attributes : Bldg 5 of 6

Field	Description
STYLE	Telephone Exchange
MODEL	Comm/Ind
Grade	C 1.00
Stories:	1
Occupancy	1.00
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Floor Type	
Floor Cover	
Heating Fuel	
Heating Type	
AC Type	
As Built Use	
Bldg Use	Commercial
Num of Bedrooms	
Total Baths	
Type	
Wet Sprinkler	
Dry Sprinkler	
1st Floor Use:	
Class	
Frame Type	
Plumbing	
Ceiling	
Group1	
Wall Height	0.00
Adjustment	

Building Photo

(http://images.vgsi.com/photos/WestHartfordCTPhotos//default.jpg)

Building Layout

(http://images.vgsi.com/photos/WestHartfordCTPhotos//Sketches/402_310

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
PHN	TELEPHONE EXCHANGE	165	165
		165	165

Building 6 : Section 1

Year Built: 1980
Living Area: 192
Replacement Cost: $29,876
Building Percent Good: 66
Replacement Cost Less Depreciation: $19,700

Building Attributes : Bldg 6 of 6	
Field	Description

STYLE	Telephone Exchange
MODEL	Comm/Ind
Grade	C 1.00
Stories:	1
Occupancy	
Exterior Wall 1	Concrete Block
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Floor Type	
Floor Cover	
Heating Fuel	
Heating Type	
AC Type	
As Built Use	
Bldg Use	Exempt Commercial
Num of Bedrooms	
Total Baths	
Type	
Wet Sprinkler	
Dry Sprinkler	
1st Floor Use:	
Class	
Frame Type	
Plumbing	
Ceiling	
Group1	
Wall Height	0.00
Adjustment	

Building Photo

(http://images.vgsi.com/photos/WestHartfordCTPhotos//default.jpg)

Building Layout

(http://images.vgsi.com/photos/WestHartfordCTPhotos//Sketches/402_311

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
PHN	TELEPHONE EXCHANGE	192	192
		192	192

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Land Line Valuation

Use Code	902	**Size (Acres)**	11.7
Description	Exempt Commercial	**Frontage**	
Zone	R-20	**Depth**	
Neighborhood		**Assessed Value**	$269,220
Alt Land Appr	No	**Appraised Value**	$384,600
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CP16	Chn Link Fence 6' hght			100.00 LF	$700	1

Valuation History

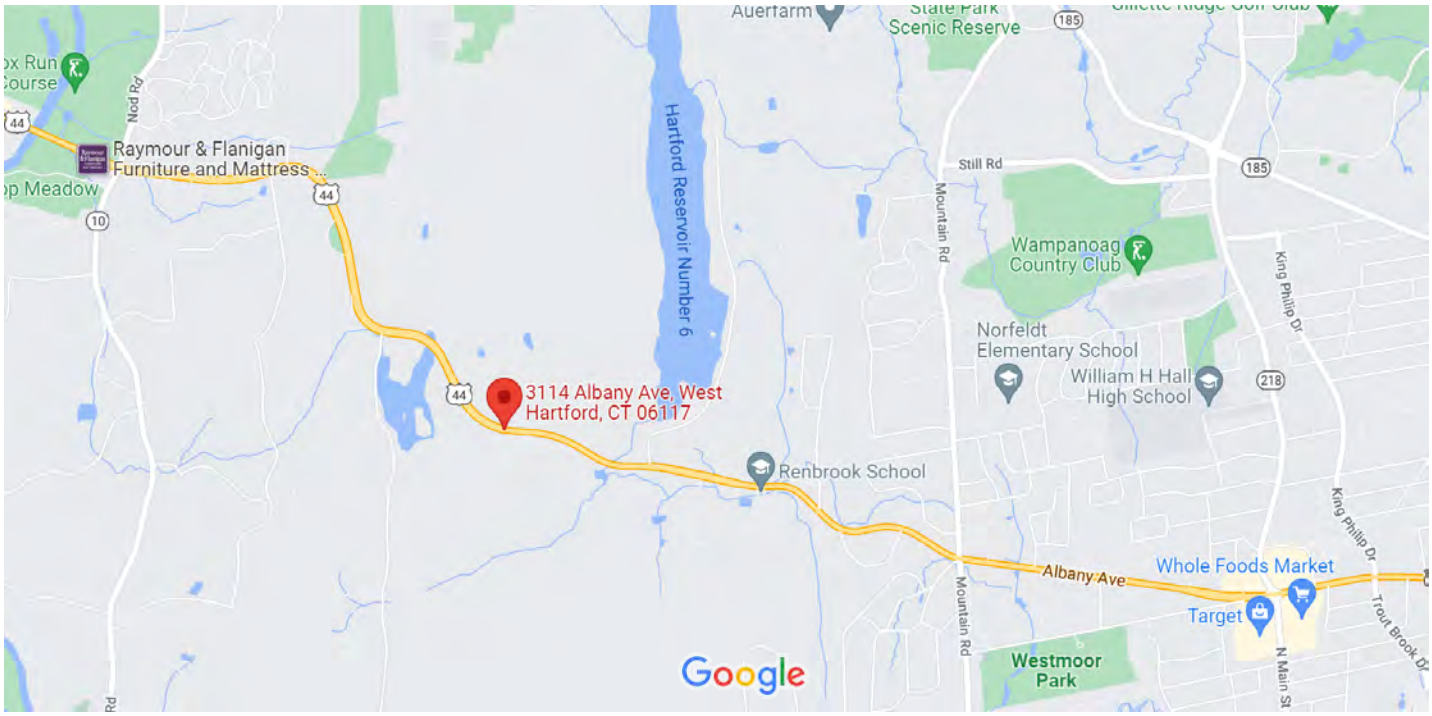
Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$217,700	$343,000	$560,700
2019	$217,700	$343,000	$560,700
2018	$217,700	$343,000	$560,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$152,390	$240,100	$392,490
2019	$152,390	$240,100	$392,490
2018	$152,390	$240,100	$392,490

EXHIBIT 5

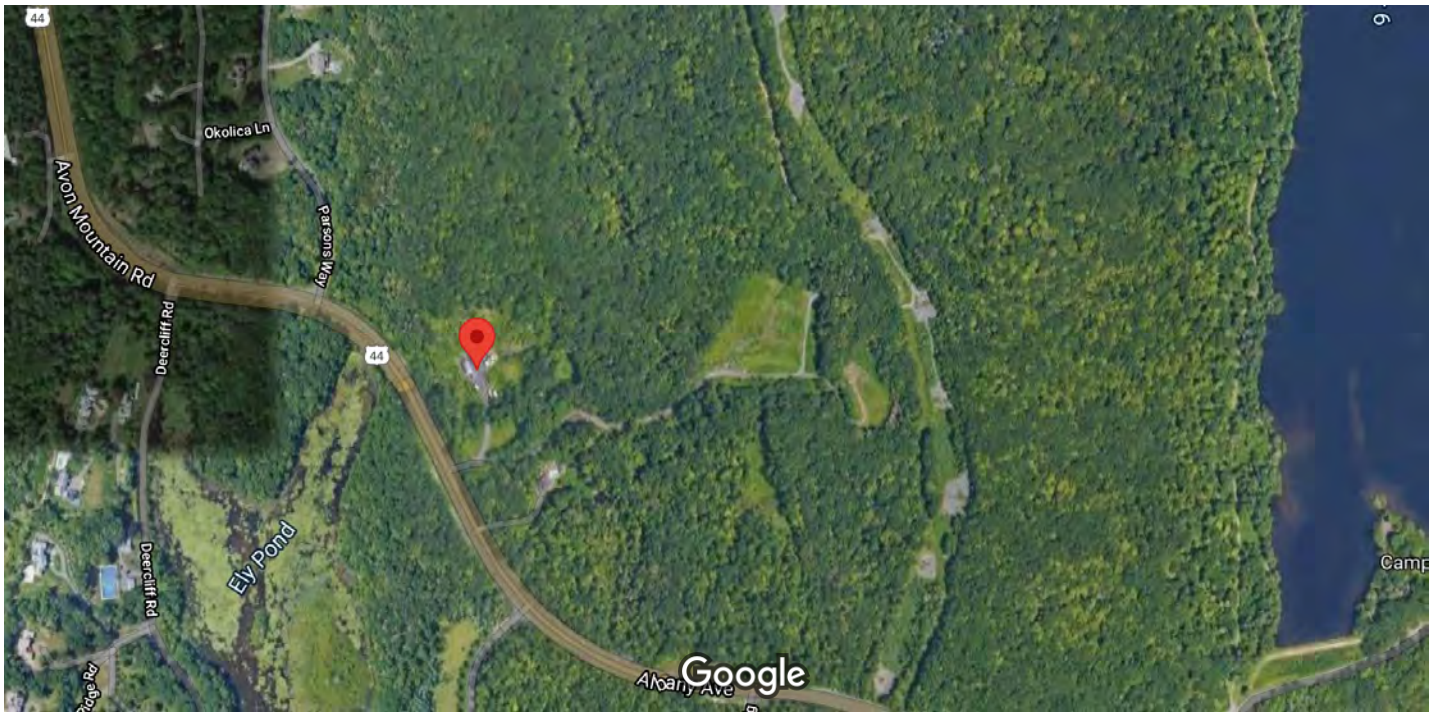
Property Map

Google Maps 3114 Albany Ave



Map data ©2021 2000 ft

Google Maps 41°47'48.5"N 72°47'48.6"W



Imagery ©2021 CNES / Airbus, Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2021 500 ft

EXHIBIT 6

Zoning Approval

SITE NAME: West Hartford SITE ID: CT15879-A

Transaction: GRAIN Nikki

ZONING/PERMITTING COMPLETION FORM

0101-CT-000101

Address: 3114 Albany Avenue, West Hartford, CT 6117

Jurisdiction: Town of West Hartford/CSC Zoning District: R-10

Zoning Approval Type: Special Use Permit Case #: 903

Approval Date: 7/5/00 Approved Height: 347 Tower Build Date:

If tower is destroyed or drop/swap required, tower can likely be rebuilt? ☐ YES ☐ NO

Conditions of Approval:	Yes	No	N/A
Removal Bond	☐	☒	☐
Site Plan Submittal	☐	☒	☐
Fall Zone	☐	☒	☐
Periodic Inspections	☐	☒	☐
Periodic Reporting	☐	☒	☐
Approval Renewal	☐	☒	☐
Additional Conditions	☒	☐	☐

Protect the existing tree screen along Route 44 all the way to the ridge line between the Tower and Route 44. This area shall not be materially altered without receiving TPZ approval.
Per Carriann Mulcahy, Secretary, Connecticut Siting Council – CSC never certified the site however there are tenants on the tower that were certified so that makes the tower in CSC jurisdiction. CSC requests that we notify them after we acquire tower so that their records are current.

JURISDICTION POC/DEPT.

Carriann Mulcahy, Secretary CSC - 860-827-2940
Carriann.Mulcahy@ct.gov

Planning/Zoning:

Phone: Email:

Bldg./Code Enforcement: Jennifer Correia

Phone: (860) 561-7531 Email: JenC@westhartford.org

Submitted by: Niki/Patches Date: 12/16/2013
Zoning Compliance

TO BE COMPLETED BY CORPORATE

	Yes	No	N/A	
Zoning Approval Attached (required)	☒	☐	☐	
Building Permit Attached (required) 75146	☒	☐	☐	Date Recd 11/30/00
Certificate of Occupancy or Compliance (CO) attached (required)	☒	☐	☐	7/23/01

Zoning Manager Approval: Diane E Borchardt Date 12/16/2013
Diane E. Borchardt, AICP

West Hartford

F16
SUP - 3114 Albany Ave

DEPARTMENT OF
COMMUNITY SERVICES

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01/01-CT-000

Filing Information Required by P.A. 75-317

AUG 9

TOWN OF WEST HARTFORD - PLANNING OFFICE

SPECIAL USE PERMIT: #903

NAME OF RECORD OWNER: Marlin Broadcasting, Inc.

STREET ADDRESS OF PROPERTY: 3114 Albany Avenue

DEED REFERENCE - VOLUME: 2309 **PAGE:** 253 **ZONE:** R-10

ORDINANCE: 177 **SECTION:** 42 (A-E)

DESCRIPTION OF ACTION:

3114 Albany Avenue – Application (SUP #903) of Marlin Broadcasting, Inc. (Paul J. Aparo, Attorney) requesting Special Use Permit approval to authorize a new 360' FM broadcasting tower, construct a new 70' fiber glass AM broadcasting tower and a new 20' x 40' equipment building and demolish the existing equipment building. (Submitted for TPZ receipt on June 5, 2000. Suggest required public hearing be scheduled for Wednesday, July 5, 2000.)
R-10 ZONE

DATE APPROVED: 7/5/00 **EFFECTIVE DATE:** 7/28/00

LEGAL NOTICE OF ACTION PUBLISHED - DATE: 7/13/00

CONDITIONS - IF ANY:

The proposed Special Use Permit will comply with the finding requirements of Section 177-42A(5a & 5b) of the West Hartford Code of Ordinances with the following conditions:

1. **At the request of the applicant the new tower is reduced to 347 feet, and the 70 foot FM antenna is withdrawn.**
2. **The applicant shall protect the existing tree screen along Route 44 all the way to the ridge line between the Tower and Route 44. This area shall not be materially altered without first receiving a TPZ approval.**

DESCRIPTION OF PROPERTY: (MAY BE ATTACHED)

SEE DEED REFERENCE

TOWN PLAN AND ZONING COMMISSION

Donald R. Foster

SECRETARY, DONALD R. FOSTER

14 July 2000

DATE

Norma W. Cronin

REC'D JUL 26 2000 @ 1:08 P.M.

Norma W. Cronin, Town Clerk

TOWN OF WEST HARTFORD

TOWN OF WEST HARTFORD 50 SOUTH MAIN STREET
WEST HARTFORD, CONNECTICUT 06107-2431
(860) 523-3123 FAX: (860) 523-3200

WIRELESS PLANNING SERVICES, LLC
PLANNING & ZONING SERVICES FOR THE WIRELESS INDUSTRY
321 North Kentucky Ave., Suite 10, Lakeland, FL 33801
PHONE 863-838-9686
E-MAIL jim@wiley-malless.com

Site Name / #:	West Hartford 0101-CT-000101		
Site Address:	3114 Albany Ave.,, West Hartford, CT	Structure Type:	PE 347' Guyed
Jurisdiction:	West Hartford, CT	Website Address:	www.west-hartford.com
Contact Person/Title:	Cathy Dorau / Associate Planner	Phone No.:	860-561-7555

Is the Zoning Code available online? [X] Yes [ ] No

Notes from Contact: 6-28-2011 No issues. The Town of West Hartford does not regulate easements or leases between private parties. The town issued a SUP for the radio tower on July 28, 2000. Note: Connecticut has the Connecticut Siting Council that is responsible for approving towers owned by or built for a FCC licensed carriers. The local jurisdiction gets 60-days prior to an application to the Council to review and comment on the application. This requires an application, staff review and a public hearing . For the Siting Council, there is an application, staff review and a public hearing before the Siting Council. A clean Siting Council application takes 4 to 6 months for review after the 2 months for the local review. 6 to 8 months. Code Website: http://www.ecode360.com/documents/WE0900/WE0900-177g%20Permit%20Structure%20for%20PCS%20Equip.pdf Co-loc with tower site plan and building permit approval

DOCUMENTS PROVIDED BY CLIENT

- [ ] Zoning Approval
- [ ] Zoning Ordinance
- [x] Other:
  - *Specify:* Address
- [ ] Planning Commission Meeting Minutes
- [ ] Board of Adjustment Meeting Minutes
- [ ] Other Minutes
  - *Specify:*

ANALYSIS OF TOWER ZONING APPROVAL

Date tower received zoning approval:	July 28, 2000
Date current tower zoning ordinance adopted:	April 9, 1998

Did the tower receive zoning approval under the current or a previous zoning code? [X] Current [ ] Previous

Current status of tower:

- [X] Conforming Use
- [ ] Legal Non-Conforming Use
- [ ] Illegal Non-Conforming Use

If Nonconforming use (Legal/Illegal) identify/explain any restrictions including any against adding tenants/future site development.

Does the zoning approval expire? [ ] Yes [X] No

If yes, what is the duration of the approval including any renewals:

Was the tower approved consistent with the zoning code in place at the time of approval?	[X] Yes	[ ] No
Are there any non-compliance or notice of violations (NOVs) pending against this site?	[ ] Yes	[X] No
If yes, explain:		
Are there any annual reports, renewals, updates or other filings required for this site?	[ ] Yes	[X] No
If yes, are all filings current as of the date of this report?	[ ] Yes	[ ] No

CERTIFICATION

This report was prepared for and may be relied upon by Grain Communications Group, Inc., GCGI Development, LLC, Grain Communications II, LLC, and Holland & Knight, their respective Subsidiaries, and their respective successors and assigns. Any rating agency or issuer or purchaser of any security collateralized or otherwise backed by the property or any loans placed upon the property may further rely upon the report. We also consent to the inclusion of this report in any form, whether in paper or digital format, including any electronic media such as CD-ROM or the internet, in the Prospectus Supplement relating to any Pinnacle securitization, and we consent to the reference to our firm under the caption "Experts" in such Prospectus Supplement.

6/28/2011

Wireless Planning Services, LLC BY James B. Malless, AICP
Signature/Date

EXHIBIT 7

EME Report

EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

Dish Wireless Existing Facility

Site ID: BOBDL00129A

BOBDL00129A
3114 Albany Avenue
West Hartford, Connecticut 06117

December 28, 2021

EBI Project Number: 6221007872

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**28.07%**

December 28, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00129A - BOBDL00129A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **3114 Albany Avenue** in **West Hartford, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully

aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 3114 Albany Avenue in West Hartford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative

estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is 100 feet above ground level (AGL).

8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

9) All calculations were done with respect to uncontrolled / general population threshold limits.

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	100 feet	Height (AGL):	100 feet	Height (AGL):	100 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna A1 MPE %:	**2.68%**	Antenna B1 MPE %:	**2.68%**	Antenna C1 MPE %:	**2.68%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	2.68%
VHF	0.08%
WCCC	2.41%
WMNR	0.01%
Rinkers Paging	0.03%
LPTV	5.64%
WHFD	0.01%
Verizon	3.45%
AT&T	7.92%
T-Mobile	5.84%
Site Total MPE % :	28.07%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	2.68%
Dish Wireless Sector B Total:	2.68%
Dish Wireless Sector C Total:	2.68%
Site Total MPE % :	28.07%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	100.0	3.64	600 MHz n71	400	0.91%
Dish Wireless 1900 MHz n70	4	542.70	100.0	8.83	1900 MHz n70	1000	0.88%
Dish Wireless 2190 MHz n66	4	542.70	100.0	8.83	2190 MHz n66	1000	0.88%
						Total:	**2.68%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the Dish Wireless facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Dish Wireless Sector	Power Density Value (%)
Sector A:	2.68%
Sector B:	2.68%
Sector C:	2.68%
Dish Wireless Maximum MPE % (Sector A):	2.68%
Site Total:	28.07%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **28.07%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

EXHIBIT 8

Structural Analysis

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 309 ft Eastpointe Guyed Tower
Customer Name: SBA Communications Corp
Customer Site Number: CT15879-A
Customer Site Name: West Hartford
Carrier Name: Dish Wireless (App#: 167827, V1)
Carrier Site ID / Name: BOBDL00129A / 0
Site Location: 3114 Albany Avenue
West Hartford, Connecticut
County
Latitude: 41.796802
Longitude: -72.796830

Analysis Result:

Max Structural Usage: 76.4% [Pass]
Max Foundation Usage: 80.0% [Pass]
Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Sital Shrestha

Introduction

The purpose of this report is to summarize the analysis results on the 309 ft Eastpointe Guyed Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Tower Engineering Professional Tower Mapping, Project #112343 dated July 12, 2011 FDH, Inc. Tower Mapping, Job #14629H1500 dated May 9, 2014
Foundation Drawing	FDH Engineering, Inc. Mapping, Project #14620E1500 dated May 22, 2014
Geotechnical Report	Clarence Welti Associates, Inc., Site Location: West Hartford, CT dated May 22, 2000
Modification Drawings	N/A
Mount Analysis	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESTowers,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} =125.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 97.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Mount Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	332.0	1	ERI 3 Bay FM w/ Radome	Direct	(1) 3"	WCCC
2	308.3	1	Scala SCA 4DR-8S	(1) Pipe Mount	(1) 3"	ZGS Hartford
3	265.0	1	SCA CA-2-FM-CP	(1) Pipe Mount	(1) 1/2"	WSDK
4	251.8	1	Antenna Concepts ACB16A	(1) Pipe Mount	(1) 1 5/8" (1) 3/8"	WRDM
5	251.0	1	Decibel DB420-B - Whip	(1) Standoff	(1) 7/8"	Master Combiner
6	243.0	1	Antel WPA-800120/6CF	Pipe Mount (SitePro R5)	(1) 7/8"	Town of West Hartford
7		2	Combilent CP00732 - TMA			
8	235.0	1	Scala 6 ft x 3 ft Grid Dish	Direct	(1) 7/8"	WCCC
9	232.0	2	Site Pro CIS04 - Ice Shield	Pipe Mount	(2) 1/2"	Town of West Hartford
10		2	RFS SC3-W100AC - Dish			
11	225.5	2	34" x 7" x 2" Panel	(2) Pipe Mount	(2) 3/8"	SNEW ISP
12	220.0	1	Antel WPA-800120/6CF	Pipe Mount	(1) 1 5/8"	Town of West Hartford
13	203.0	1	Decibel DB420-B - Whip	(1) Standoff	(1) 1/2"	Master Combiner
14	196.0	1	Cablewave PA6-112 - Dish	(1) Standoff	(1) EW71	WRDM
15		1	T.S. 3"x 3" x 6.5'			
16	180.0	1	Micronetixx LP-1900-B-12	(1) Pipe Mount	(1) 1 5/8"	WRNT (R&C) Tyche Media
17	165.0	1	Antel BCD-80010 - Whip	Pipe Mount	(1) 1 5/8"	Town of West Hartford
18	164.5	1	6810 1 Bay FM	(1) Pipe Mount	(1) 1/2"	91.9 FM
19	160.0	3	RFS APX16DWV-16DWVS-E-A20	(3) T-Frames [(2)V-Bracing Kit (MS-C2B-350P) (3) Stabilizer Kit (MS-STZ-2PST) (3) Stabilizer adapter kit (MS-STZ-350P) (1) Support Rail Kit (MS-HR35-18)] per sector	(6) 1 5/8" Coax (6) 1.9" Fiber	T-Mobile
20		3	RFS APXVAALL24-43-U-NA20			
21		3	Ericsson AIR6449 B41			
22		3	Ericsson KRY 112 144/1			
23		1	Commscope TMAT1921B78-21A			
24		4	Commscope SDX1926Q-43			
25		3	Ericsson 4449 B71 + B85			
26		3	Ericsson 4415 B66A			
27		3	Ericsson 4424 B25			
28	146.5	1	2 ft Dish	(1) Pipe Mount	(1) 3/8"	SNEW ISP
29		1	12" x 4.5" x 6.25" TMA			
30	145.0	1	12' x 1" - Omni	(1) Standoff	(1) 1 5/8"	Ham Radio
31	142.5	-	-	-	(1) 1 5/8"	-
32	140.5	-	-	-	(1) 1 5/8"	-
33	136.5	1	5'x10" Detuner	Direct	(1) ¼"	Ham Radio

34	130.0	2	Andrew HBX-6517DS - Panel	(3) T-Frame	(8) 1 5/8" (1) 1 5/8" Fiber	Verizon
35		2	Andrew LNX-6514DS - Panel			
36		2	Swedcom SLCP 2x6015 - Panel			
37		2	Swedcom SACP 2x5516 - Panel			
38		4	RFS FD9R6004/2C			
39		2	Alcatel Lucent RRH2x40-AWS			
40		1	RFS DB-T1-6Z-8AB-0Z			
~~41~~	~~120.5~~	~~3~~	~~RFS APXV18-206517S - Panel~~	~~(1) Pipe Mount~~	~~(6) 1 5/8"~~	~~Metro PCS~~
42	112.0	3	Kathrein - 800 10121 - Panel	(3) Modified T-Frame with (3) Reinforcement Kit (Site Pro 1 P/N SFR-K-L, and (3) Addition of Horizontal Pipe 2.0 Std. And (3) Addition of Crossover Plate Kit (Site-Pro 1 P/N SCX1-K)	(12) 1 5/8" (6) 3/4" DC (2) 3/8" Fiber	AT&T
43		2	Kathrein - 800-10966 - Panel			
44		1	Kathrein - 800-10965 - Panel			
45		2	CCI - HPA65R-BU8A - Panel			
46		1	CCI - HPA65R-BU6A - Panel			
47		3	Ericsson RRUS 11			
48		3	Ericsson RRUS 12			
49		3	Ericsson RRUS A2			
50		3	Ericsson RRUS 4478 B14			
51		3	Ericsson RRUS 4478 B5			
52		3	Ericsson RRUS 4478 B66			
53		6	Kaelus DBCT108F1V92-1			
54		6	Cci DTMABP7819VG12A TMA			
55		12	Kathrein 860 10025 -			
56		2	Raycap DC6-48-60-18-8F ("Squid")			
57		1	Raycap DC6-48-60-18-8F			
58		3	Ericsson RRUS 32			
~~59~~	~~48.0~~	~~1~~	~~GPS~~	~~Direct~~	~~(1) 3/8"~~	~~Metro PCS~~
63	21.0	1	14-Element 4.5 ft Yagi	(1) Standoff	(1) 1/2"	Ham Radio

*Metro PCS removed.

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
59	100.0	3	JMA Wireless MX08FRO665-21-Panel	(3) Commscope MTC3975083 (Sector Frame)	(1) 1.6" Hybrid	Dish Wireless
60		3	Fujitsu TA08025-B605- RRH			
61		3	Fujitsu TA08025-B604- RRH			
62		1	Raycap RDIDC-9181-PF-48- OVP			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

Tower Component	Legs	Diagonals	Horizontals	Guy Wires
Max. Usage:	**51.6%**	**57.3%**	**25.0%**	**76.4%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Base Reactions		Inner Anchors	
Reactions (kips)	Axial	Shear	Uplift	Shear
Analysis Reactions	382.3	9.2	67.7	81.4

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

The maximum twist and sway of the microwave dishes under the operational wind speed as specified in the Analysis Criteria are listed in the table below:

Elevation (ft)	Antenna / Dish	Carrier	Twist (deg)	Sway (deg)
235.0	6 ft x 3 ft Grid Dish	WCCC	0.582	0.033
232.0	SC3-W100AC - Dish	Town of West Hartfor	0.584	0.033
196.0	PA6-112 w/ Radome - Dish	WRDM	0.614	0.038
164.5	6810 1 Bay FM - Dish	91.9 FM	0.567	0.018
146.5	2 ft Dish w/Radome - Dish	SNEW ISP	0.541	0.026

It is recommended that the carriers review the twist and sway values of the microwave dishes.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Structure: CT15879-A-SBA

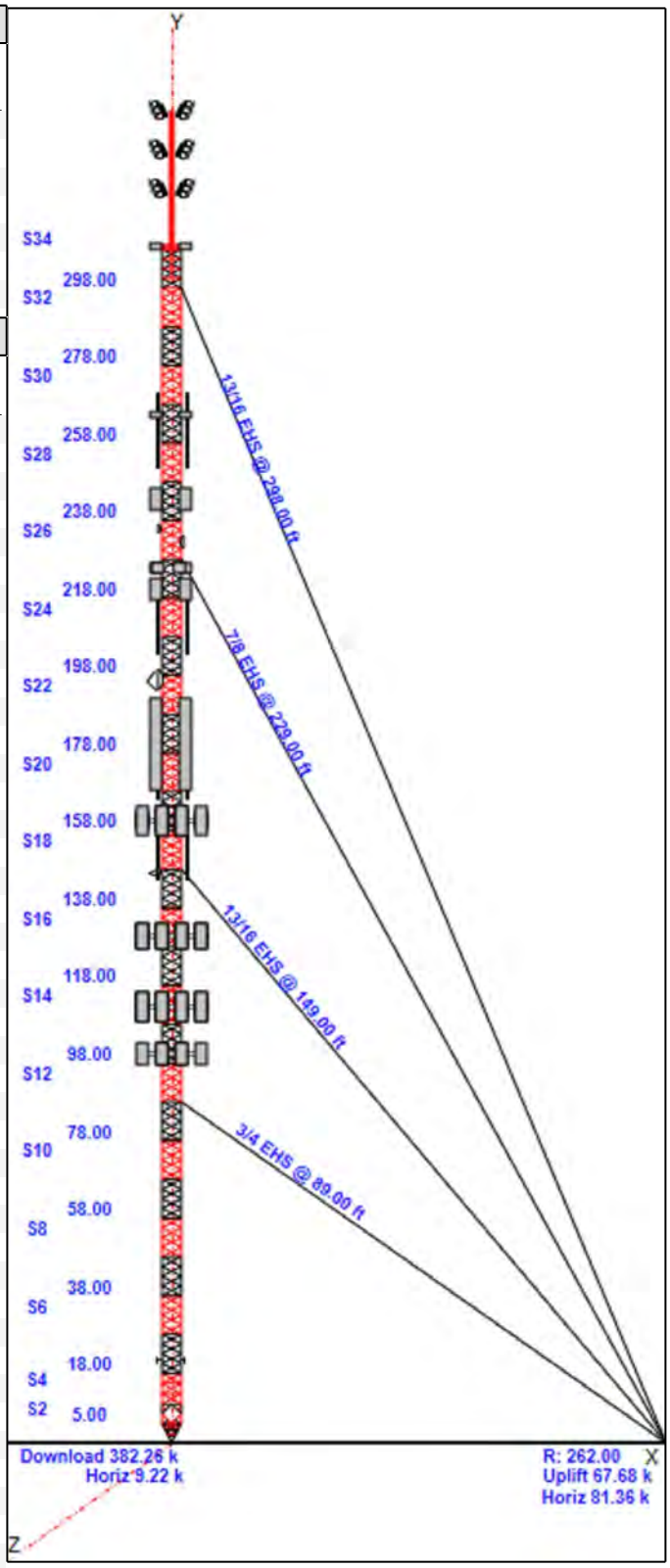
Site Name:	West Hartford			**Code:**	EIA/TIA-222-G	10/26/2021
Type:	Guyed	**Base Shape:**	Triangle	**Basic WS:**	97.00	
Height:	309.00 (ft)	**Base Width:**	0.00	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	5.00	**Operational WS:**	60.00	Page: 1

Section Properties

Sect	Leg Members	Diagonal Members	Horizontal Members
1-3	SOL 3" SOLID	SOL 1 1/4" SOLID	PLT 6" x 3/4"
4	SOL 3" SOLID	SOL 1" SOLID	SOL 7/8" SOLID
5-16	SOL 3" SOLID	SOL 7/8" SOLID	SOL 1" SOLID
17-18	SOL 3" SOLID	SOL 1" SOLID	SOL 1 1/4" SOLID
19-32	SOL 2 7/8" SOLID	SOL 7/8" SOLID	SOL 1" SOLID
33	SOL 2 7/8" SOLID	SOL 7/8" SOLID	SOL 1 1/4" SOLID
34	SOL 2 7/8" SOLID		PLT 6"X1"

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
344.00	344.00	1	Beacon
344.00	344.00	1	Lightning Rod
342.00	342.00	1	ERI 3 Bay FM w/ Radome
332.00	332.00	1	ERI 3 Bay FM w/ Radome
332.00	332.00	1	2.4" x 18" Pipe
322.00	322.00	1	ERI 3 Bay FM w/ Radome
309.50	309.50	1	10' Mount
308.30	308.30	1	Scala SCA 4DR-8S
265.00	265.00	1	Pipe Mount
265.00	265.00	1	SCA CA-2-FM-CP
251.80	258.50	1	ACB16A
251.80	251.80	1	2.4" x 25' Mount Pipe
251.00	260.71	1	DB420-B
251.00	251.00	1	Side Arm Mount
243.00	243.00	1	WPA-800120/6CF
243.00	243.00	2	Combilent CP00732
243.00	243.00	1	SitePro R5 Pipe Mount
235.00	235.00	1	6 ft x 3 ft Grid Dish
232.00	232.00	2	SC3-W100AC
232.00	232.00	2	SitePro CIS04
232.00	232.00	2	SitePro R5 Pipe Mount
225.50	225.50	2	Pipe Mount
225.50	225.50	2	34" x 7" x 2" Panel
220.00	220.00	1	WPA-800120/6CF
220.00	220.00	1	SitePro R5 Pipe Mount
203.00	212.71	1	DB420-B
203.00	203.00	1	Side Arm Mount
196.00	196.00	1	2.4" x 6.5' Mount Pipe
196.00	196.00	1	PA6-112 w/ Radome
196.00	196.00	1	T.S. 3"x 3" x 6.5'
180.00	180.00	1	LP-1900-B-12
180.00	180.00	1	2.5" x 25' Mount Pipe
165.00	165.00	1	SitePro R5 Pipe Mount
165.00	170.67	1	BCD-80010
164.50	164.50	1	6810 1 Bay FM
164.50	164.50	1	2.4"x 10' Mount Pipe
160.00	160.00	3	T-Frame
160.00	160.00	3	AIR6449 B41
160.00	160.00	4	SDX1926Q-43
160.00	160.00	3	4449 B71 + B85
160.00	160.00	3	APXVAALL24-43-U-NA20
160.00	160.00	3	Ericsson KRY 112 144/1



160.00	160.00	1	Commscope TMAT1921B78-21A
160.00	160.00	1	(3) HR w/ Double V-Brace Kits
160.00	160.00	1	(3) Stabilizer Kit
160.00	160.00	3	APX16DWV-16DWV-S-E-A20
160.00	160.00	3	Radio 4415 B66A
160.00	160.00	3	4424 B25
146.50	146.50	1	2.4"x 4' Mount Pipe
146.50	146.50	1	2 ft Dish w/Radome
146.50	146.50	1	12" x 4.5" x 6.25" TMA
145.00	151.00	1	12' Omni
145.00	145.00	1	30" Sidearm
136.50	136.50	1	5' x 10" Detuner
130.00	130.00	2	HBX-6517DS
130.00	130.00	2	LNX-6514DS
130.00	130.00	2	SLCP 2x6015
130.00	130.00	2	SACP 2x5516
130.00	130.00	4	FD9R6004/2C
130.00	130.00	2	RRH2x40-AWS
130.00	130.00	1	DB-T1-6Z-8AB-0Z
130.00	130.00	3	T-Frame
112.00	112.00	3	800 10121
112.00	112.00	3	Ericsson RRUS 11
112.00	112.00	3	Ericsson RRUS 12
112.00	112.00	3	Ericsson RRUS A2
112.00	112.00	6	Cci DTMABP7819VG12A TMA
112.00	112.00	12	Kathrein 860 10025
112.00	112.00	2	Raycap DC6-48-60-18-8F ("Squid")
112.00	112.00	3	T-Frame
112.00	112.00	2	800-10966
112.00	112.00	1	800-10965
112.00	112.00	2	HPA65R-BU8A
112.00	112.00	1	HPA65R-BU6A
112.00	112.00	3	Ericsson RRUS 4478 B14
112.00	112.00	3	Ericsson RRUS 4478 B5
112.00	112.00	3	Ericsson RRUS 4478 B66
112.00	112.00	3	Ericsson RRUS 32
112.00	112.00	6	Kaelus DBCT108F1V92-1
112.00	112.00	1	Raycap DC6-48-60-18-8F
112.00	112.00	1	REINFORCING KIT
100.00	100.00	3	MX08FRO665-21
100.00	100.00	3	TA08025-B604
100.00	100.00	3	TA08025-B605
100.00	100.00	1	RDIDC-9181-PF-48
100.00	100.00	1	(3) MTC3975083
21.00	21.00	1	14-Element 4.5 ft Yagi
21.00	21.00	1	1-ft Side Arm

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
0.00	344.00	1	1" Light Conduit
0.00	332.00	1	3" Coax
0.00	308.30	1	3" Coax
0.00	308.00	1	Safety Cable
0.00	290.00	3	Detuner
0.00	265.00	1	1/2" Coax
0.00	251.80	1	1 5/8" Coax

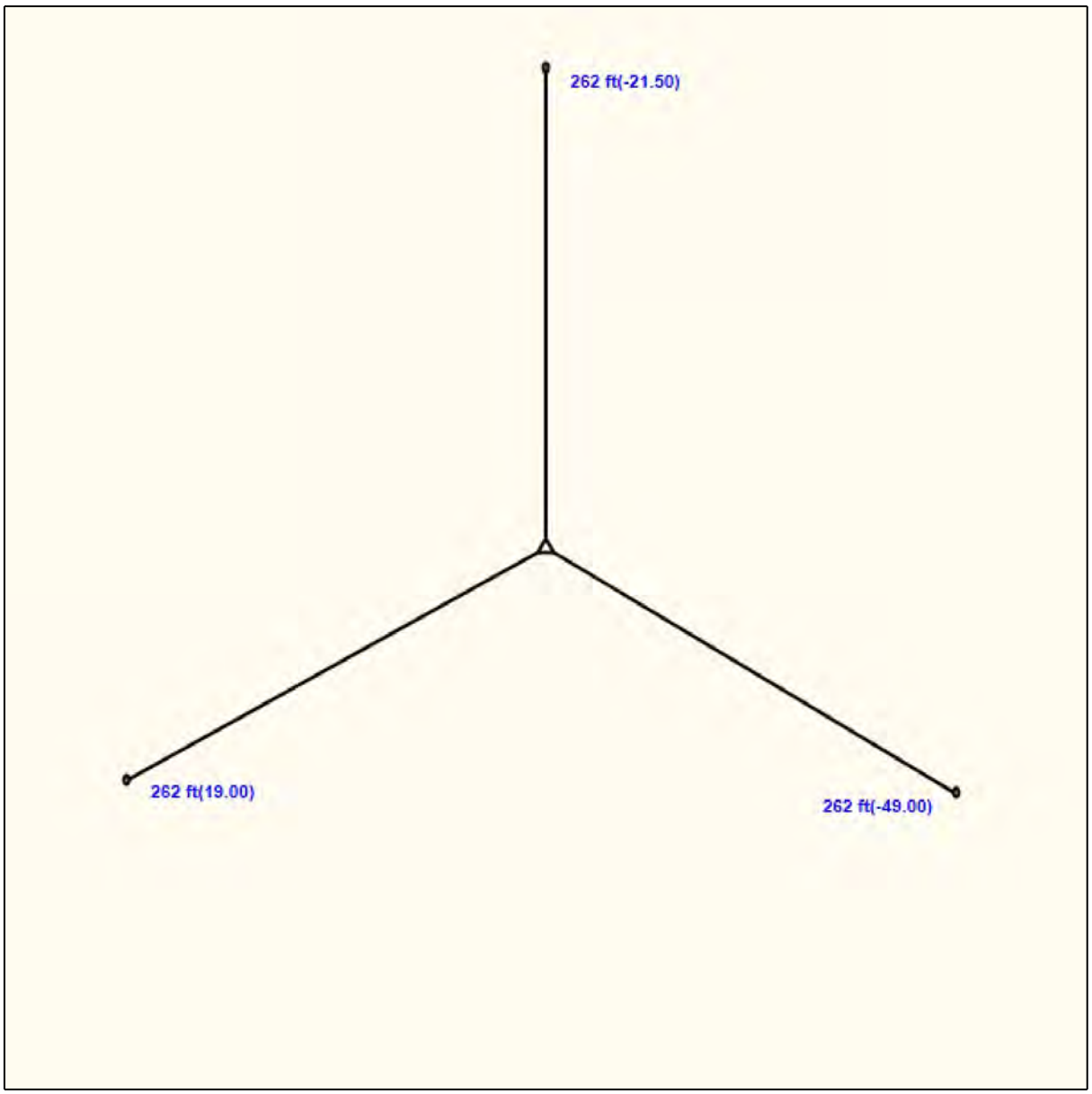
0.00	251.80	1	3/8" Coax
0.00	251.00	1	7/8" Coax
0.00	243.00	1	7/8" Coax
0.00	235.00	1	7/8" Coax
0.00	232.00	2	1/2" Coax
0.00	225.50	2	3/8" Coax
0.00	220.00	1	1 5/8" Coax
0.00	203.00	1	1/2" Coax
0.00	196.00	1	EW71
0.00	180.00	1	1 5/8" Coax
0.00	165.00	1	1 5/8" Coax
0.00	164.50	1	1/2" Coax
0.00	160.00	6	1 5/8" Coax
0.00	160.00	6	1.9" Fiber
0.00	146.50	1	3/8" Coax
0.00	145.00	1	1 5/8" Coax
0.00	142.50	1	1 5/8" Coax
0.00	140.50	1	1 5/8" Coax
0.00	136.50	1	1/4" Coax
0.00	130.00	8	1 5/8" Coax
0.00	130.00	1	1 5/8" Fiber
0.00	112.00	12	1 5/8" Coax
0.00	112.00	6	3/4" DC
0.00	112.00	2	3/8" Fiber
0.00	100.00	1	1.6" Hybrid
0.00	21.00	1	1/2" Coax

Max Guy Wire

76.42% @ 88 ft - 3/4 EHS

Anchor Drops with Guy Radius - Structure: CT15879-A-SBA

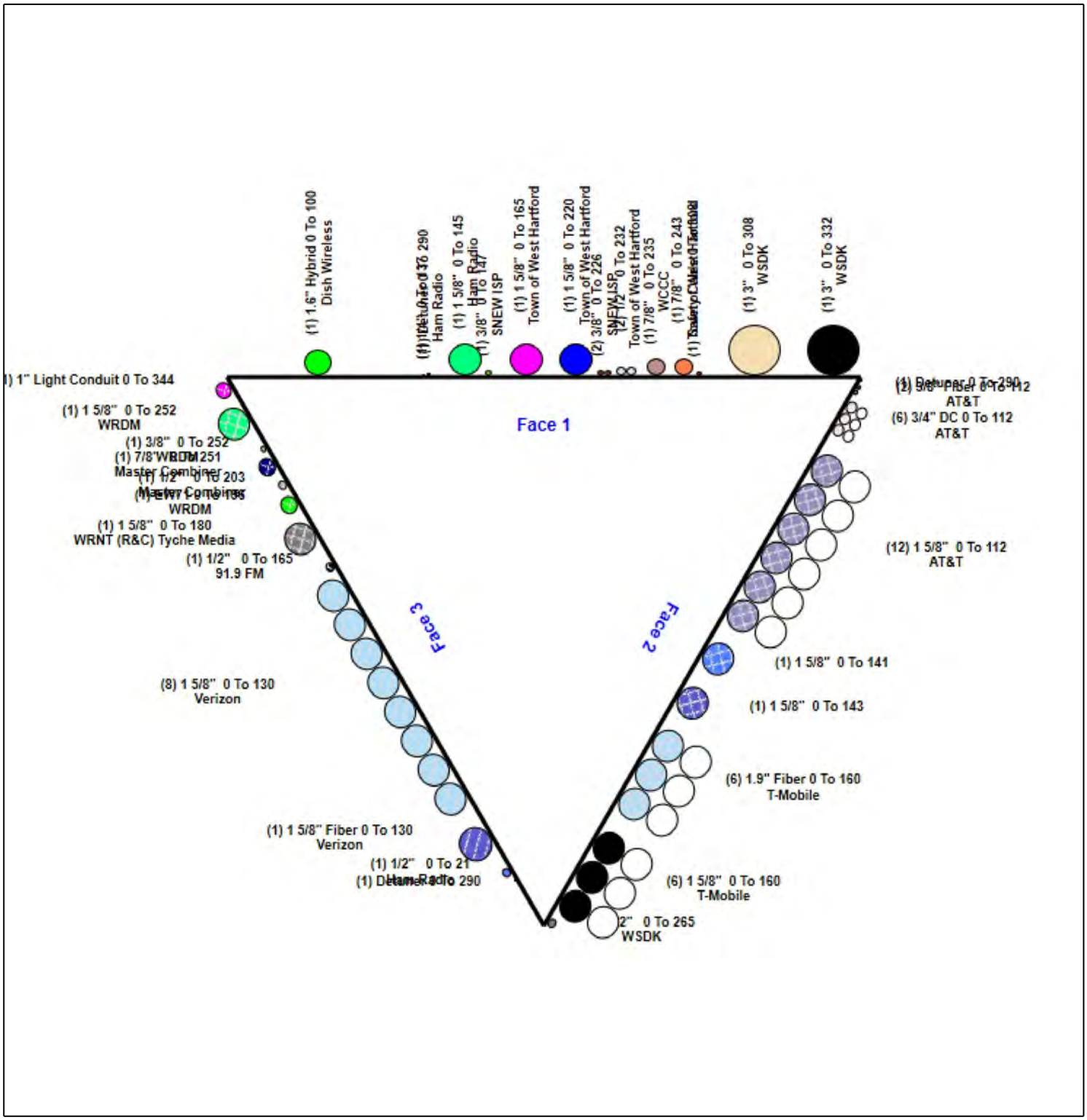
Site Name:	West Hartford			**Code:**	EIA/TIA-222-G	10/26/2021
Type:	Guyed	**Base Shape:**	Triangle	**Basic WS:**	97.00	
Height:	309.00 (ft)	**Base Width:**	0.00	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	5.00	**Operational WS:**	60.00	Page: 5



Structure: CT15879-A-SBA - Coax Line Placement

Type: Guyed
Site Name: West Hartford
Height: 309.00 (ft)

10/26/2021



Loading Summary

Structure:	CT15879-A-SBA		**Code:**	EIA/TIA-222-G	10/26/2021
Site Name:	West Hartford		**Exposure:**	C	
Height:	309.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 7

Tower Engineering Solutions

Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	Ice Weight (lb)	Ice CaAa (sf)	Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
344.00	Beacon	1	36.00	2.720	228.96	4.095	28.000	17.500	17.500	1.00	1.00	0.000
344.00	Lightning Rod	1	5.00	0.500	35.34	3.028	72.000	1.000	1.000	1.00	1.00	0.000
342.00	ERI 3 Bay FM w/ Radome	1	157.00	8.980	427.88	21.133	36.000	0.000	0.000	1.00	1.00	0.000
332.00	ERI 3 Bay FM w/ Radome	1	157.00	8.980	427.08	21.097	36.000	0.000	0.000	1.00	1.00	0.000
332.00	2.4" x 18" Pipe	1	10.00	0.240	20.08	0.482	0.000	0.000	0.000	1.00	1.00	0.000
322.00	ERI 3 Bay FM w/ Radome	1	157.00	8.980	426.25	21.060	36.000	0.000	0.000	1.00	1.00	0.000
309.50	10' Mount	1	40.00	4.170	80.02	8.342	0.000	0.000	0.000	1.00	1.00	0.000
308.30	Scala SCA 4DR-8S	1	50.00	16.980	870.58	189.67	24.000	19.500	13.000	1.00	1.00	0.000
265.00	Pipe Mount	1	20.00	1.200	39.69	2.381	0.000	0.000	0.000	1.00	1.00	0.000
265.00	SCA CA-2-FM-CP	1	10.00	2.020	171.81	22.276	24.000	19.500	13.000	1.00	1.00	0.000
251.80	ACB16A	1	80.00	19.230	639.96	75.695	160.800	18.000	2.500	1.00	1.00	6.700
251.80	2.4" x 25' Mount Pipe	1	90.00	5.950	178.27	11.785	0.000	0.000	0.000	1.00	1.00	0.000
251.00	DB420-B	1	34.50	4.480	226.75	19.493	233.000	0.000	0.000	1.00	1.00	9.708
251.00	Side Arm Mount	1	30.00	1.410	59.42	2.793	0.000	0.000	0.000	1.00	1.00	0.000
243.00	WPA-800120/6CF	1	11.00	4.380	154.80	7.606	70.900	5.600	5.600	1.00	1.00	0.000
243.00	Combilent CP00732	2	12.00	1.270	23.72	2.510	0.000	0.000	0.000	1.00	1.00	0.000
243.00	SitePro R5 Pipe Mount	1	136.90	2.700	270.62	5.337	0.000	0.000	0.000	1.00	0.67	0.000
235.00	6 ft x 3 ft Grid Dish	1	198.00	16.790	1160.96	48.370	0.000	0.000	0.000	1.00	1.00	0.000
232.00	SC3-W100AC	2	40.00	10.740	273.45	13.561	39.500	39.500	15.000	1.00	1.00	0.000
232.00	SitePro CIS04	2	290.10	2.920	955.19	6.706	14.000	75.000	48.000	1.00	0.67	0.000
232.00	SitePro R5 Pipe Mount	2	136.90	2.700	270.06	5.326	0.000	0.000	0.000	1.00	1.00	0.000
225.50	Pipe Mount	2	40.00	2.600	78.74	5.118	0.000	0.000	0.000	1.00	1.00	0.000
225.50	34" x 7" x 2" Panel	2	20.00	1.900	77.74	3.749	34.000	6.000	3.000	1.00	1.00	0.000
220.00	WPA-800120/6CF	1	11.00	4.380	153.57	7.578	70.900	5.600	5.600	1.00	1.00	0.000
220.00	SitePro R5 Pipe Mount	1	136.90	2.700	269.48	5.315	0.000	0.000	0.000	1.00	0.67	0.000
203.00	DB420-B	1	34.50	4.480	222.57	19.166	233.000	0.000	0.000	1.00	1.00	9.708
203.00	Side Arm Mount	1	30.00	1.410	58.78	2.763	0.000	0.000	0.000	1.00	1.00	0.000
196.00	2.4" x 6.5' Mount Pipe	1	20.00	1.540	39.09	3.010	0.000	0.000	0.000	1.00	1.00	0.000
196.00	PA6-112 w/ Radome	1	308.00	24.410	1279.37	27.649	72.000	72.000	0.000	1.00	1.00	0.000
196.00	T.S. 3"x 3" x 6.5'	1	60.00	3.250	117.27	6.352	0.000	0.000	0.000	1.00	1.00	0.000
180.00	LP-1900-B-12	1	50.00	7.300	184.68	17.357	282.000	3.500	3.500	1.00	1.00	0.000
180.00	2.5" x 25' Mount Pipe	1	90.00	5.950	175.45	11.599	0.000	0.000	0.000	1.00	1.00	0.000
165.00	SitePro R5 Pipe Mount	1	136.90	2.700	265.39	5.234	0.000	0.000	0.000	1.00	1.00	0.000
165.00	BCD-80010	1	26.50	2.950	239.20	7.646	136.000	2.600	2.600	1.00	1.00	5.667
164.50	6810 1 Bay FM	1	12.00	0.560	19.41	1.270	7.900	7.900	0.000	1.00	1.00	0.000
164.50	2.4"x 10' Mount Pipe	1	40.00	2.380	77.54	4.614	0.000	0.000	0.000	1.00	1.00	0.000
160.00	T-Frame	3	339.80	11.700	696.99	19.606	0.000	0.000	0.000	0.75	0.75	0.000
160.00	AIR6449 B41	3	103.00	5.650	287.35	6.928	33.100	20.500	8.300	0.80	0.71	0.000
160.00	SDX1926Q-43	4	6.10	0.230	17.57	0.725	4.000	6.000	3.000	0.80	0.67	0.000
160.00	4449 B71 + B85	3	75.00	1.970	154.54	2.736	17.900	13.200	10.600	0.80	0.67	0.000
160.00	APXVAALL24-43-U-NA20	3	122.80	20.240	709.54	22.828	95.900	24.000	7.800	0.80	0.70	0.000
160.00	Ericsson KRY 112 144/1	3	11.02	0.410	25.54	1.049	6.900	6.100	2.700	0.80	0.67	0.000
160.00	Commscope TMAT1921B78-21A	1	17.60	0.660	41.11	1.121	9.100	4.100	8.100	0.80	0.67	0.000
160.00	(3) HR w/ Double V-Brace Kits	1	650.00	15.500	1748.10	37.321	0.000	0.000	0.000	0.75	0.75	0.000
160.00	(3) Stabilizer Kit	1	180.00	6.100	484.09	14.688	0.000	0.000	0.000	0.75	0.75	0.000
160.00	APX16DWV-16DWV-S-E-A20	3	41.80	6.460	240.65	7.991	55.900	13.000	3.200	0.80	0.62	0.000
160.00	Radio 4415 B66A	3	46.20	1.860	138.07	2.648	16.500	13.500	6.300	0.80	0.67	0.000
160.00	4424 B25	3	88.00	2.050	213.48	2.878	17.100	14.400	11.300	0.80	0.67	0.000

Loading Summary

Structure:	CT15879-A-SBA		**Code:**	EIA/TIA-222-G	10/26/2021
Site Name:	West Hartford		**Exposure:**	C	
Height:	309.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 8

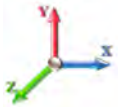
146.50	2.4"x 4' Mount Pipe	1	10.00	0.870	19.26	1.676	0.000	0.000	0.000	1.00	1.00	0.000
146.50	2 ft Dish w/Radome	1	17.00	2.710	313.43	3.775	0.000	0.000	0.000	1.00	1.00	0.000
146.50	12" x 4.5" x 6.25" TMA	1	20.00	0.450	52.77	0.869	12.000	4.500	6.250	1.00	1.00	0.000
145.00	12' Omni	1	40.00	1.200	160.72	3.104	144.000	3.000	3.000	1.00	1.00	6.000
145.00	30" Sidearm	1	20.00	0.350	38.53	0.674	0.000	0.000	0.000	1.00	1.00	0.000
136.50	5' x 10" Detuner	1	30.00	1.250	57.59	2.400	0.000	0.000	0.000	1.00	1.00	0.000
130.00	HBX-6517DS	2	12.10	5.240	137.45	8.469	74.900	6.500	3.300	0.80	0.75	0.000
130.00	LNX-6514DS	2	33.10	8.090	263.26	11.773	72.000	11.900	7.100	0.80	0.80	0.000
130.00	SLCP 2x6015	2	30.00	9.960	355.14	13.871	77.000	14.000	11.000	0.80	0.89	0.000
130.00	SACP 2x5516	2	16.00	5.090	171.49	7.964	56.000	9.700	6.500	0.80	0.84	0.000
130.00	FD9R6004/2C	4	3.10	0.370	13.67	0.970	5.800	6.500	1.500	0.80	0.62	0.000
130.00	RRH2x40-AWS	2	44.00	2.160	124.00	3.541	24.400	10.600	6.700	0.80	0.67	0.000
130.00	DB-T1-6Z-8AB-0Z	1	18.90	4.800	219.16	5.976	24.000	24.000	10.000	0.80	0.71	0.000
130.00	T-Frame	3	356.40	10.900	723.50	18.117	0.000	0.000	0.000	0.75	0.75	0.000
112.00	800 10121	3	46.30	5.150	195.18	7.881	54.500	10.300	5.900	0.80	0.67	0.000
112.00	Ericsson RRUS 11	3	51.00	2.520	144.67	3.341	17.000	17.800	7.200	0.80	0.67	0.000
112.00	Ericsson RRUS 12	3	60.00	2.700	146.86	3.555	18.200	17.800	8.000	0.80	0.67	0.000
112.00	Ericsson RRUS A2	3	21.20	1.860	68.00	3.122	12.800	15.000	3.400	0.80	0.62	0.000
112.00	Cci DTMABP7819VG12A TMA	6	19.20	1.140	52.28	2.137	10.600	11.000	3.800	0.80	0.67	0.000
112.00	Kathrein 860 10025	12	1.20	0.180	8.97	0.671	7.600	2.400	2.000	0.80	0.92	0.000
112.00	Raycap DC6-48-60-18-8F ("Squid")	2	31.80	0.920	111.93	1.488	24.000	11.000	11.000	0.80	0.75	0.000
112.00	T-Frame	3	344.92	17.500	694.45	28.900	0.000	0.000	0.000	0.75	0.75	0.000
112.00	800-10966	2	125.70	17.360	609.05	19.733	96.000	20.000	6.900	0.80	0.72	0.000
112.00	800-10965	1	108.60	13.810	512.25	15.885	78.700	20.000	6.900	0.80	1.00	0.000
112.00	HPA65R-BU8A	2	54.00	11.230	418.15	13.399	96.000	11.700	7.600	0.80	0.93	0.000
112.00	HPA65R-BU6A	1	51.00	7.840	327.83	9.524	71.000	11.700	7.600	0.80	1.00	0.000
112.00	Ericsson RRUS 4478 B14	3	59.40	1.650	113.14	2.322	15.000	13.200	7.300	0.80	0.67	0.000
112.00	Ericsson RRUS 4478 B5	3	59.90	1.840	123.26	2.551	16.500	13.400	7.700	0.80	0.67	0.000
112.00	Ericsson RRUS 4478 B66	3	48.50	1.150	104.71	1.786	14.900	9.300	4.000	0.80	0.67	0.000
112.00	Ericsson RRUS 32	3	53.00	2.740	175.29	3.706	27.200	12.100	7.000	0.80	0.67	0.000
112.00	Kaelus DBCT108F1V92-1	6	6.60	0.410	24.34	0.826	8.000	6.200	3.700	0.80	0.80	0.000
112.00	Raycap DC6-48-60-18-8F	1	31.80	0.920	111.93	1.488	24.000	11.000	11.000	0.80	1.00	0.000
112.00	REINFORCING KIT	1	650.00	18.000	1708.60	42.429	0.000	0.000	0.000	1.00	1.00	0.000
100.00	MX08FRO665-21	3	64.50	12.490	438.02	14.371	72.000	20.000	8.000	0.80	0.74	0.000
100.00	TA08025-B604	3	63.90	1.960	128.92	2.680	15.800	15.000	7.900	0.80	0.67	0.000
100.00	TA08025-B605	3	75.00	1.960	142.17	2.680	15.800	15.000	9.100	0.80	0.67	0.000
100.00	RDIDC-9181-PF-48	1	21.90	2.010	90.28	2.740	16.600	14.600	8.500	0.90	1.00	0.000
100.00	(3) MTC3975083	1	1242.0	28.050	2800.73	73.311	0.000	0.000	0.000	0.75	1.00	0.000
21.00	14-Element 4.5 ft Yagi	1	6.50	1.500	65.76	4.734	16.500	44.000	0.000	1.00	1.00	0.000
21.00	1-ft Side Arm	1	30.00	0.350	53.15	0.620	0.000	0.000	0.000	1.00	1.00	0.000
	Totals:	**171**	**13,695.82**		**42,749.59**					**Number of Appurtenances :**		**88**

Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	344.00	1" Light Conduit	1	1.00	1.00	100.00	3	Individual NR		N	1.00	1.00	
0.00	332.00	3" Coax	1	3.02	1.78	100.00	1	Individual NR		N	1.00	1.00	
0.00	308.30	3" Coax	1	3.02	1.78	100.00	1	Individual NR		N	1.00	1.00	
0.00	308.00	Safety Cable	1	0.38	0.27	100.00	1	Individual NR		N	1.00	1.00	
0.00	290.00	Detuner	3	0.19	0.02	100.00	1,2,3	Individual NR		Y	1.00	1.00	
0.00	265.00	1/2" Coax	1	0.65	0.16	100.00	2	Individual NR		N	1.00	1.00	
0.00	251.80	1 5/8" Coax	1	1.98	1.04	100.00	3	Individual NR		N	1.00	1.00	
0.00	251.80	3/8" Coax	1	0.44	0.08	100.00	3	Individual NR		N	1.00	1.00	
0.00	251.00	7/8" Coax	1	1.11	0.52	100.00	3	Individual NR		N	1.00	1.00	
0.00	243.00	7/8" Coax	1	1.11	0.52	100.00	1	Individual NR		N	1.00	1.00	
0.00	235.00	7/8" Coax	1	1.11	0.52	100.00	1	Individual NR		N	1.00	1.00	
0.00	232.00	1/2" Coax	2	0.65	0.16	100.00	1	Individual NR		N	1.00	1.00	
0.00	225.50	3/8" Coax	2	0.44	0.08	100.00	1	Individual NR		N	1.00	1.00	
0.00	220.00	1 5/8" Coax	1	1.98	1.04	100.00	1	Individual NR		N	1.00	1.00	
0.00	203.00	1/2" Coax	1	0.65	0.16	100.00	3	Individual NR		N	1.00	1.00	
0.00	196.00	EW71	1	1.11	0.29	100.00	3	Individual NR		N	1.00	1.00	
0.00	180.00	1 5/8" Coax	1	1.98	1.04	100.00	3	Individual NR		N	1.00	1.00	
0.00	165.00	1 5/8" Coax	1	1.98	1.04	100.00	1	Individual NR		N	1.00	1.00	
0.00	164.50	1/2" Coax	1	0.65	0.16	100.00	3	Individual NR		N	1.00	1.00	
0.00	160.00	1 5/8" Coax	6	1.98	1.04	50.00	2	Block		N	1.00	1.00	
0.00	160.00	1.9" Fiber	6	1.98	1.04	50.00	2	Block		N	1.00	1.00	
0.00	146.50	3/8" Coax	1	0.44	0.08	100.00	1	Individual NR		N	1.00	1.00	
0.00	145.00	1 5/8" Coax	1	1.98	1.04	100.00	1	Individual NR		N	1.00	1.00	
0.00	142.50	1 5/8" Coax	1	1.98	1.04	100.00	2	Individual NR		N	1.00	1.00	
0.00	140.50	1 5/8" Coax	1	1.98	1.04	100.00	2	Individual NR		N	1.00	1.00	
0.00	136.50	1/4" Coax	1	0.25	0.04	100.00	1	Individual NR		N	1.00	1.00	
0.00	130.00	1 5/8" Coax	8	1.98	1.04	100.00	3	Individual NR		N	1.00	1.00	
0.00	130.00	1 5/8" Fiber	1	2.00	1.10	100.00	3	Individual NR		N	1.00	1.00	
0.00	112.00	1 5/8" Coax	12	1.98	1.04	50.00	2	Block		N	1.00	1.00	
0.00	112.00	3/4" DC	6	0.75	0.40	50.00	2	Block		N	1.00	1.00	
0.00	112.00	3/8" Fiber	2	0.38	0.06	100.00	2	Individual NR		N	1.00	1.00	
0.00	100.00	1.6" Hybrid	1	1.60	1.82	100.00	1	Individual NR		N	1.00	1.00	
0.00	21.00	1/2" Coax	1	0.65	0.16	100.00	3	Individual NR		N	1.00	1.00	

Section Forces

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 10	



Tower Engineering Solutions

Load Case: 1.2D + 1.6W Normal Wind — 1.2D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	17.40	0.578	4.75	0.00	0.39	2.09	1.00	1.00	0.00	3.64	37.36	0.00	1,636.3	0.0	179.92	697.43	683.41
2	6.3	17.40	0.290	2.25	0.00	0.19	2.62	1.00	1.00	0.00	1.60	18.68	0.00	786.4	0.0	99.18	348.72	447.90
3	8.8	17.40	0.290	2.11	0.00	0.18	2.66	1.00	1.00	0.00	1.52	18.68	0.00	774.1	0.0	95.23	348.72	443.94
4	14.0	17.40	0.000	7.75	0.00	0.18	2.65	1.00	1.00	0.00	4.53	59.77	0.00	1,649.4	0.0	284.22	1115.90	1,400.11
5	23.0	19.02	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	74.33	0.00	1,938.9	0.0	361.93	1517.15	1,879.08
6	33.0	20.52	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	74.17	0.00	1,890.2	0.0	375.71	1633.69	2,009.40
7	43.0	21.69	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	74.17	0.00	1,938.3	0.0	412.89	1727.31	2,140.20
8	53.0	22.67	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	74.17	0.00	1,890.2	0.0	415.12	1805.04	2,220.16
9	63.0	23.51	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	74.17	0.00	1,938.3	0.0	447.46	1871.93	2,319.39
10	73.0	24.25	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	74.17	0.00	1,890.2	0.0	444.06	1930.90	2,374.96
11	83.0	24.92	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	74.17	0.00	1,938.3	0.0	474.20	1983.80	2,458.00
12	93.0	25.52	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	74.17	0.00	1,890.2	0.0	467.29	2031.88	2,499.17
13	103.0	26.07	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	73.10	0.00	1,920.9	0.0	496.25	2048.81	2,545.06
14	113.0	26.59	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	61.77	0.00	1,760.4	0.0	486.85	1739.09	2,225.94
15	123.0	27.07	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	54.39	0.00	1,736.5	0.0	515.14	1537.54	2,052.68
16	133.0	27.52	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	42.46	0.00	1,597.9	0.0	503.84	1241.76	1,745.60
17	143.0	27.94	0.000	9.55	0.00	0.18	2.66	1.00	1.00	0.00	5.58	36.62	0.00	1,757.8	0.0	563.78	1100.94	1,664.72
18	153.0	28.34	0.000	9.05	0.00	0.17	2.69	1.00	1.00	0.00	5.27	34.00	0.00	1,664.4	0.0	546.79	1043.97	1,590.76
19	163.0	28.72	0.000	8.70	0.00	0.17	2.71	1.00	1.00	0.00	5.06	22.72	0.00	1,390.1	0.0	536.13	666.58	1,202.71
20	173.0	29.08	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	18.57	0.00	1,302.0	0.0	521.78	537.86	1,059.63
21	183.0	29.43	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	17.25	0.00	1,340.2	0.0	549.34	506.22	1,055.56
22	193.0	29.76	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	16.74	0.00	1,288.9	0.0	533.93	496.91	1,030.85
23	203.0	30.08	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	15.72	0.00	1,333.2	0.0	561.46	472.46	1,033.92
24	213.0	30.38	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	15.45	0.00	1,284.1	0.0	545.13	469.21	1,014.34
25	223.0	30.68	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	13.95	0.00	1,321.8	0.0	572.68	428.60	1,001.28
26	233.0	30.96	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	12.14	0.00	1,265.6	0.0	555.53	377.77	933.30
27	243.0	31.24	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	10.60	0.00	1,304.7	0.0	583.13	333.92	917.05
28	253.0	31.50	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	8.24	0.00	1,240.7	0.0	565.24	263.96	829.20
29	263.0	31.76	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	7.03	0.00	1,281.3	0.0	592.92	228.60	821.52
30	273.0	32.01	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	6.65	0.00	1,231.8	0.0	574.37	218.52	792.89
31	283.0	32.26	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	6.65	0.00	1,279.9	0.0	602.14	220.18	822.32
32	293.0	32.49	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	6.27	0.00	1,231.3	0.0	582.98	201.64	784.63
33	303.0	32.72	0.000	8.41	0.00	0.16	2.73	1.00	1.00	0.00	4.88	6.18	0.00	1,258.2	0.0	593.08	198.00	791.08
34	308.5	32.85	0.793	0.48	0.00	0.24	2.46	1.00	1.00	0.00	1.07	0.41	0.00	818.7	0.0	117.86	13.20	131.06
														50,771.0	**0.0**			**46,921.83**

Section Forces

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 60° Wind — 1.2D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	17.40	0.578	4.75	0.00	0.39	2.09	0.80	1.00	0.00	3.52	37.36	0.00	1,636.3	0.0	174.20	697.43	871.63
2	6.3	17.40	0.290	2.25	0.00	0.19	2.62	0.80	1.00	0.00	1.54	18.68	0.00	786.4	0.0	95.58	348.72	444.30
3	8.8	17.40	0.290	2.11	0.00	0.18	2.66	0.80	1.00	0.00	1.46	18.68	0.00	774.1	0.0	91.58	348.72	440.29
4	14.0	17.40	0.000	7.75	0.00	0.18	2.65	0.80	1.00	0.00	4.53	59.77	0.00	1,649.4	0.0	284.22	1115.90	1,400.11
5	23.0	19.02	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	74.33	0.00	1,938.9	0.0	361.93	1517.15	1,879.08
6	33.0	20.52	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	74.17	0.00	1,890.2	0.0	375.71	1633.69	2,009.40
7	43.0	21.69	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	74.17	0.00	1,938.3	0.0	412.89	1727.31	2,140.20
8	53.0	22.67	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	74.17	0.00	1,890.2	0.0	415.12	1805.04	2,220.16
9	63.0	23.51	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	74.17	0.00	1,938.3	0.0	447.46	1871.93	2,319.39
10	73.0	24.25	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	74.17	0.00	1,890.2	0.0	444.06	1930.90	2,374.96
11	83.0	24.92	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	74.17	0.00	1,938.3	0.0	474.20	1983.80	2,458.00
12	93.0	25.52	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	74.17	0.00	1,890.2	0.0	467.29	2031.88	2,499.17
13	103.0	26.07	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	73.10	0.00	1,920.9	0.0	496.25	2048.81	2,545.06
14	113.0	26.59	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	61.77	0.00	1,760.4	0.0	486.85	1739.09	2,225.94
15	123.0	27.07	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	54.39	0.00	1,736.5	0.0	515.14	1537.54	2,052.68
16	133.0	27.52	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	42.46	0.00	1,597.9	0.0	503.84	1241.76	1,745.60
17	143.0	27.94	0.000	9.55	0.00	0.18	2.66	0.80	1.00	0.00	5.58	36.62	0.00	1,757.8	0.0	563.78	1100.94	1,664.72
18	153.0	28.34	0.000	9.05	0.00	0.17	2.69	0.80	1.00	0.00	5.27	34.00	0.00	1,664.4	0.0	546.79	1043.97	1,590.76
19	163.0	28.72	0.000	8.70	0.00	0.17	2.71	0.80	1.00	0.00	5.06	22.72	0.00	1,390.1	0.0	536.13	666.58	1,202.71
20	173.0	29.08	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	18.57	0.00	1,302.0	0.0	521.78	537.86	1,059.63
21	183.0	29.43	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	17.25	0.00	1,340.2	0.0	549.34	506.22	1,055.56
22	193.0	29.76	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	16.74	0.00	1,288.9	0.0	533.93	496.91	1,030.85
23	203.0	30.08	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	15.72	0.00	1,333.2	0.0	561.46	472.46	1,033.92
24	213.0	30.38	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	15.45	0.00	1,284.1	0.0	545.13	469.21	1,014.34
25	223.0	30.68	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	13.95	0.00	1,321.8	0.0	572.68	428.60	1,001.28
26	233.0	30.96	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	12.14	0.00	1,265.6	0.0	555.53	377.77	933.30
27	243.0	31.24	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	10.60	0.00	1,304.7	0.0	583.13	333.92	917.05
28	253.0	31.50	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	8.24	0.00	1,240.7	0.0	565.24	263.96	829.20
29	263.0	31.76	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	7.03	0.00	1,281.3	0.0	592.92	228.60	821.52
30	273.0	32.01	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	6.65	0.00	1,231.8	0.0	574.37	218.52	792.89
31	283.0	32.26	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	6.65	0.00	1,279.9	0.0	602.14	220.18	822.32
32	293.0	32.49	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	6.27	0.00	1,231.3	0.0	582.98	201.64	784.63
33	303.0	32.72	0.000	8.41	0.00	0.16	2.73	0.80	1.00	0.00	4.88	6.18	0.00	1,258.2	0.0	593.08	198.00	791.08
34	308.5	32.85	0.793	0.48	0.00	0.24	2.46	0.80	1.00	0.00	0.91	0.41	0.00	818.7	0.0	100.43	13.20	113.63
														50,771.0	**0.0**			**47,085.38**

Section Forces

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 12	

Load Case: 1.2D + 1.6W 90° Wind — 1.2D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	17.40	0.578	4.75	0.00	0.39	2.09	0.85	1.00	0.00	3.55	37.36	0.00	1,636.3	0.0	175.63	697.43	873.06
2	6.3	17.40	0.290	2.25	0.00	0.19	2.62	0.85	1.00	0.00	1.56	18.68	0.00	786.4	0.0	96.48	348.72	445.20
3	8.8	17.40	0.290	2.11	0.00	0.18	2.66	0.85	1.00	0.00	1.47	18.68	0.00	774.1	0.0	92.49	348.72	441.21
4	14.0	17.40	0.000	7.75	0.00	0.18	2.65	0.85	1.00	0.00	4.53	59.77	0.00	1,649.4	0.0	284.22	1115.90	1,400.11
5	23.0	19.02	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	74.33	0.00	1,938.9	0.0	361.93	1517.15	1,879.08
6	33.0	20.52	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	74.17	0.00	1,890.2	0.0	375.71	1633.69	2,009.40
7	43.0	21.69	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	74.17	0.00	1,938.3	0.0	412.89	1727.31	2,140.20
8	53.0	22.67	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	74.17	0.00	1,890.2	0.0	415.12	1805.04	2,220.16
9	63.0	23.51	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	74.17	0.00	1,938.3	0.0	447.46	1871.93	2,319.39
10	73.0	24.25	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	74.17	0.00	1,890.2	0.0	444.06	1930.90	2,374.96
11	83.0	24.92	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	74.17	0.00	1,938.3	0.0	474.20	1983.80	2,458.00
12	93.0	25.52	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	74.17	0.00	1,890.2	0.0	467.29	2031.88	2,499.17
13	103.0	26.07	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	73.10	0.00	1,920.9	0.0	496.25	2048.81	2,545.06
14	113.0	26.59	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	61.77	0.00	1,760.4	0.0	486.85	1739.09	2,225.94
15	123.0	27.07	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	54.39	0.00	1,736.5	0.0	515.14	1537.54	2,052.68
16	133.0	27.52	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	42.46	0.00	1,597.9	0.0	503.84	1241.76	1,745.60
17	143.0	27.94	0.000	9.55	0.00	0.18	2.66	0.85	1.00	0.00	5.58	36.62	0.00	1,757.8	0.0	563.78	1100.94	1,664.72
18	153.0	28.34	0.000	9.05	0.00	0.17	2.69	0.85	1.00	0.00	5.27	34.00	0.00	1,664.4	0.0	546.79	1043.97	1,590.76
19	163.0	28.72	0.000	8.70	0.00	0.17	2.71	0.85	1.00	0.00	5.06	22.72	0.00	1,390.1	0.0	536.13	666.58	1,202.71
20	173.0	29.08	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	18.57	0.00	1,302.0	0.0	521.78	537.86	1,059.63
21	183.0	29.43	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	17.25	0.00	1,340.2	0.0	549.34	506.22	1,055.56
22	193.0	29.76	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	16.74	0.00	1,288.9	0.0	533.93	496.91	1,030.85
23	203.0	30.08	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	15.72	0.00	1,333.2	0.0	561.46	472.46	1,033.92
24	213.0	30.38	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	15.45	0.00	1,284.1	0.0	545.13	469.21	1,014.34
25	223.0	30.68	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	13.95	0.00	1,321.8	0.0	572.68	428.60	1,001.28
26	233.0	30.96	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	12.14	0.00	1,265.6	0.0	555.53	377.77	933.30
27	243.0	31.24	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	10.60	0.00	1,304.7	0.0	583.13	333.92	917.05
28	253.0	31.50	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	8.24	0.00	1,240.7	0.0	565.24	263.96	829.20
29	263.0	31.76	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	7.03	0.00	1,281.3	0.0	592.92	228.60	821.52
30	273.0	32.01	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	6.65	0.00	1,231.8	0.0	574.37	218.52	792.89
31	283.0	32.26	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	6.65	0.00	1,279.9	0.0	602.14	220.18	822.32
32	293.0	32.49	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	6.27	0.00	1,231.3	0.0	582.98	201.64	784.63
33	303.0	32.72	0.000	8.41	0.00	0.16	2.73	0.85	1.00	0.00	4.88	6.18	0.00	1,258.2	0.0	593.08	198.00	791.08
34	308.5	32.85	0.793	0.48	0.00	0.24	2.46	0.85	1.00	0.00	0.95	0.41	0.00	818.7	0.0	104.79	13.20	117.99
														50,771.0	**0.0**			**47,092.98**

Section Forces

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 13	

Load Case: 0.9D + 1.6W Normal Wind — 0.9D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

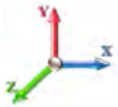
Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	17.40	0.578	4.75	0.00	0.39	2.09	1.00	1.00	0.00	3.64	37.36	0.00	1,227.2	0.0	179.92	697.43	877.35
2	6.3	17.40	0.290	2.25	0.00	0.19	2.62	1.00	1.00	0.00	1.60	18.68	0.00	589.8	0.0	99.18	348.72	447.90
3	8.8	17.40	0.290	2.11	0.00	0.18	2.66	1.00	1.00	0.00	1.52	18.68	0.00	580.5	0.0	95.23	348.72	443.94
4	14.0	17.40	0.000	7.75	0.00	0.18	2.65	1.00	1.00	0.00	4.53	59.77	0.00	1,237.0	0.0	284.22	1115.90	1,400.11
5	23.0	19.02	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	74.33	0.00	1,454.2	0.0	361.93	1517.15	1,879.08
6	33.0	20.52	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	74.17	0.00	1,417.7	0.0	375.71	1633.69	2,009.40
7	43.0	21.69	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	74.17	0.00	1,453.7	0.0	412.89	1727.31	2,140.20
8	53.0	22.67	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	74.17	0.00	1,417.7	0.0	415.12	1805.04	2,220.16
9	63.0	23.51	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	74.17	0.00	1,453.7	0.0	447.46	1871.93	2,319.39
10	73.0	24.25	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	74.17	0.00	1,417.7	0.0	444.06	1930.90	2,374.96
11	83.0	24.92	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	74.17	0.00	1,453.7	0.0	474.20	1983.80	2,458.00
12	93.0	25.52	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	74.17	0.00	1,417.7	0.0	467.29	2031.88	2,499.17
13	103.0	26.07	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	73.10	0.00	1,440.6	0.0	496.25	2048.81	2,545.06
14	113.0	26.59	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	61.77	0.00	1,320.3	0.0	486.85	1739.09	2,225.94
15	123.0	27.07	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	54.39	0.00	1,302.4	0.0	515.14	1537.54	2,052.68
16	133.0	27.52	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	42.46	0.00	1,198.4	0.0	503.84	1241.76	1,745.60
17	143.0	27.94	0.000	9.55	0.00	0.18	2.66	1.00	1.00	0.00	5.58	36.62	0.00	1,318.4	0.0	563.78	1100.94	1,664.72
18	153.0	28.34	0.000	9.05	0.00	0.17	2.69	1.00	1.00	0.00	5.27	34.00	0.00	1,248.3	0.0	546.79	1043.97	1,590.76
19	163.0	28.72	0.000	8.70	0.00	0.17	2.71	1.00	1.00	0.00	5.06	22.72	0.00	1,042.6	0.0	536.13	666.58	1,202.71
20	173.0	29.08	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	18.57	0.00	976.5	0.0	521.78	537.86	1,059.63
21	183.0	29.43	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	17.25	0.00	1,005.1	0.0	549.34	506.22	1,055.56
22	193.0	29.76	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	16.74	0.00	966.6	0.0	533.93	496.91	1,030.85
23	203.0	30.08	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	15.72	0.00	999.9	0.0	561.46	472.46	1,033.92
24	213.0	30.38	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	15.45	0.00	963.1	0.0	545.13	469.21	1,014.34
25	223.0	30.68	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	13.95	0.00	991.3	0.0	572.68	428.60	1,001.28
26	233.0	30.96	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	12.14	0.00	949.2	0.0	555.53	377.77	933.30
27	243.0	31.24	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	10.60	0.00	978.5	0.0	583.13	333.92	917.05
28	253.0	31.50	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	8.24	0.00	930.5	0.0	565.24	263.96	829.20
29	263.0	31.76	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	7.03	0.00	961.0	0.0	592.92	228.60	821.52
30	273.0	32.01	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	6.65	0.00	923.9	0.0	574.37	218.52	792.89
31	283.0	32.26	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	6.65	0.00	960.0	0.0	602.14	220.18	822.32
32	293.0	32.49	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	6.27	0.00	923.4	0.0	582.98	201.64	784.63
33	303.0	32.72	0.000	8.41	0.00	0.16	2.73	1.00	1.00	0.00	4.88	6.18	0.00	943.6	0.0	593.08	198.00	791.08
34	308.5	32.85	0.793	0.48	0.00	0.24	2.46	1.00	1.00	0.00	1.07	0.41	0.00	614.0	0.0	117.86	13.20	131.06
														38,078.3	**0.0**			**47,115.77**

Section Forces

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 14	



Tower Engineering Solutions

Load Case: 0.9D + 1.6W 60° Wind — 0.9D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	17.40	0.578	4.75	0.00	0.39	2.09	0.80	1.00	0.00	3.52	37.36	0.00	1,227.2	0.0	174.20	697.43	871.63
2	6.3	17.40	0.290	2.25	0.00	0.19	2.62	0.80	1.00	0.00	1.54	18.68	0.00	589.8	0.0	95.58	348.72	444.30
3	8.8	17.40	0.290	2.11	0.00	0.18	2.66	0.80	1.00	0.00	1.46	18.68	0.00	580.5	0.0	91.58	348.72	440.29
4	14.0	17.40	0.000	7.75	0.00	0.18	2.65	0.80	1.00	0.00	4.53	59.77	0.00	1,237.0	0.0	284.22	1115.90	1,400.11
5	23.0	19.02	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	74.33	0.00	1,454.2	0.0	361.93	1517.15	1,879.08
6	33.0	20.52	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	74.17	0.00	1,417.7	0.0	375.71	1633.69	2,009.40
7	43.0	21.69	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	74.17	0.00	1,453.7	0.0	412.89	1727.31	2,140.20
8	53.0	22.67	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	74.17	0.00	1,417.7	0.0	415.12	1805.04	2,220.16
9	63.0	23.51	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	74.17	0.00	1,453.7	0.0	447.46	1871.93	2,319.39
10	73.0	24.25	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	74.17	0.00	1,417.7	0.0	444.06	1930.90	2,374.96
11	83.0	24.92	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	74.17	0.00	1,453.7	0.0	474.20	1983.80	2,458.00
12	93.0	25.52	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	74.17	0.00	1,417.7	0.0	467.29	2031.88	2,499.17
13	103.0	26.07	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	73.10	0.00	1,440.6	0.0	496.25	2048.81	2,545.06
14	113.0	26.59	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	61.77	0.00	1,320.3	0.0	486.85	1739.09	2,225.94
15	123.0	27.07	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	54.39	0.00	1,302.4	0.0	515.14	1537.54	2,052.68
16	133.0	27.52	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	42.46	0.00	1,198.4	0.0	503.84	1241.76	1,745.60
17	143.0	27.94	0.000	9.55	0.00	0.18	2.66	0.80	1.00	0.00	5.58	36.62	0.00	1,318.4	0.0	563.78	1100.94	1,664.72
18	153.0	28.34	0.000	9.05	0.00	0.17	2.69	0.80	1.00	0.00	5.27	34.00	0.00	1,248.3	0.0	546.79	1043.97	1,590.76
19	163.0	28.72	0.000	8.70	0.00	0.17	2.71	0.80	1.00	0.00	5.06	22.72	0.00	1,042.6	0.0	536.13	666.58	1,202.71
20	173.0	29.08	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	18.57	0.00	976.5	0.0	521.78	537.86	1,059.63
21	183.0	29.43	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	17.25	0.00	1,005.1	0.0	549.34	506.22	1,055.56
22	193.0	29.76	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	16.74	0.00	966.6	0.0	533.93	496.91	1,030.85
23	203.0	30.08	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	15.72	0.00	999.9	0.0	561.46	472.46	1,033.92
24	213.0	30.38	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	15.45	0.00	963.1	0.0	545.13	469.21	1,014.34
25	223.0	30.68	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	13.95	0.00	991.3	0.0	572.68	428.60	1,001.28
26	233.0	30.96	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	12.14	0.00	949.2	0.0	555.53	377.77	933.30
27	243.0	31.24	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	10.60	0.00	978.5	0.0	583.13	333.92	917.05
28	253.0	31.50	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	8.24	0.00	930.5	0.0	565.24	263.96	829.20
29	263.0	31.76	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	7.03	0.00	961.0	0.0	592.92	228.60	821.52
30	273.0	32.01	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	6.65	0.00	923.9	0.0	574.37	218.52	792.89
31	283.0	32.26	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	6.65	0.00	960.0	0.0	602.14	220.18	822.32
32	293.0	32.49	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	6.27	0.00	923.4	0.0	582.98	201.64	784.63
33	303.0	32.72	0.000	8.41	0.00	0.16	2.73	0.80	1.00	0.00	4.88	6.18	0.00	943.6	0.0	593.08	198.00	791.08
34	308.5	32.85	0.793	0.48	0.00	0.24	2.46	0.80	1.00	0.00	0.91	0.41	0.00	614.0	0.0	100.43	13.20	113.63
														38,078.3	**0.0**			**47,085.38**

Section Forces

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 15	

Load Case: 0.9D + 1.6W 90° Wind — 0.9D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	17.40	0.578	4.75	0.00	0.39	2.09	0.85	1.00	0.00	3.55	37.36	0.00	1,227.2	0.0	175.63	697.43	873.06
2	6.3	17.40	0.290	2.25	0.00	0.19	2.62	0.85	1.00	0.00	1.56	18.68	0.00	589.8	0.0	96.48	348.72	445.20
3	8.8	17.40	0.290	2.11	0.00	0.18	2.66	0.85	1.00	0.00	1.47	18.68	0.00	580.5	0.0	92.49	348.72	441.21
4	14.0	17.40	0.000	7.75	0.00	0.18	2.65	0.85	1.00	0.00	4.53	59.77	0.00	1,237.0	0.0	284.22	1115.90	1,400.11
5	23.0	19.02	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	74.33	0.00	1,454.2	0.0	361.93	1517.15	1,879.08
6	33.0	20.52	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	74.17	0.00	1,417.7	0.0	375.71	1633.69	2,009.40
7	43.0	21.69	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	74.17	0.00	1,453.7	0.0	412.89	1727.31	2,140.20
8	53.0	22.67	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	74.17	0.00	1,417.7	0.0	415.12	1805.04	2,220.16
9	63.0	23.51	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	74.17	0.00	1,453.7	0.0	447.46	1871.93	2,319.39
10	73.0	24.25	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	74.17	0.00	1,417.7	0.0	444.06	1930.90	2,374.96
11	83.0	24.92	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	74.17	0.00	1,453.7	0.0	474.20	1983.80	2,458.00
12	93.0	25.52	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	74.17	0.00	1,417.7	0.0	467.29	2031.88	2,499.17
13	103.0	26.07	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	73.10	0.00	1,440.6	0.0	496.25	2048.81	2,545.06
14	113.0	26.59	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	61.77	0.00	1,320.3	0.0	486.85	1739.09	2,225.94
15	123.0	27.07	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	54.39	0.00	1,302.4	0.0	515.14	1537.54	2,052.68
16	133.0	27.52	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	42.46	0.00	1,198.4	0.0	503.84	1241.76	1,745.60
17	143.0	27.94	0.000	9.55	0.00	0.18	2.66	0.85	1.00	0.00	5.58	36.62	0.00	1,318.4	0.0	563.78	1100.94	1,664.72
18	153.0	28.34	0.000	9.05	0.00	0.17	2.69	0.85	1.00	0.00	5.27	34.00	0.00	1,248.3	0.0	546.79	1043.97	1,590.76
19	163.0	28.72	0.000	8.70	0.00	0.17	2.71	0.85	1.00	0.00	5.06	22.72	0.00	1,042.6	0.0	536.13	666.58	1,202.71
20	173.0	29.08	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	18.57	0.00	976.5	0.0	521.78	537.86	1,059.63
21	183.0	29.43	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	17.25	0.00	1,005.1	0.0	549.34	506.22	1,055.56
22	193.0	29.76	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	16.74	0.00	966.6	0.0	533.93	496.91	1,030.85
23	203.0	30.08	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	15.72	0.00	999.9	0.0	561.46	472.46	1,033.92
24	213.0	30.38	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	15.45	0.00	963.1	0.0	545.13	469.21	1,014.34
25	223.0	30.68	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	13.95	0.00	991.3	0.0	572.68	428.60	1,001.28
26	233.0	30.96	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	12.14	0.00	949.2	0.0	555.53	377.77	933.30
27	243.0	31.24	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	10.60	0.00	978.5	0.0	583.13	333.92	917.05
28	253.0	31.50	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	8.24	0.00	930.5	0.0	565.24	263.96	829.20
29	263.0	31.76	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	7.03	0.00	961.0	0.0	592.92	228.60	821.52
30	273.0	32.01	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	6.65	0.00	923.9	0.0	574.37	218.52	792.89
31	283.0	32.26	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	6.65	0.00	960.0	0.0	602.14	220.18	822.32
32	293.0	32.49	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	6.27	0.00	923.4	0.0	582.98	201.64	784.63
33	303.0	32.72	0.000	8.41	0.00	0.16	2.73	0.85	1.00	0.00	4.88	6.18	0.00	943.6	0.0	593.08	198.00	791.08
34	308.5	32.85	0.793	0.48	0.00	0.24	2.46	0.85	1.00	0.00	0.95	0.41	0.00	614.0	0.0	104.79	13.20	117.99
														38,078.3	**0.0**			**47,092.98**

Section Forces

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 16	

Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 1.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	4.62	0.578	14.19	9.44	0.98	2.06	1.00	1.00	1.55	15.36	42.40	52.79	4,045.2	2408.9	124.55	27.58	152.13
2	6.3	4.62	0.290	7.07	4.82	0.53	1.86	1.00	1.00	1.69	5.28	21.45	28.93	2,159.7	1373.3	38.66	122.64	161.30
3	8.8	4.62	0.290	7.09	4.98	0.53	1.86	1.00	1.00	1.75	5.30	21.55	29.92	2,177.8	1403.7	38.78	125.10	163.88
4	14.0	4.62	0.000	27.63	19.89	0.62	1.79	1.00	1.00	1.84	21.07	69.39	100.3	6,050.8	4401.4	148.44	340.87	489.31
5	23.0	5.05	0.000	32.93	24.02	0.59	1.81	1.00	1.00	1.93	24.45	86.99	129.5	7,656.8	5717.9	190.01	510.27	700.29
6	33.0	5.45	0.000	31.75	23.24	0.57	1.83	1.00	1.00	2.00	23.12	87.30	133.3	7,792.7	5902.4	195.72	588.79	784.50
7	43.0	5.76	0.000	34.48	25.58	0.62	1.79	1.00	1.00	2.05	26.15	87.65	136.9	8,192.6	6254.3	229.97	570.25	800.22
8	53.0	6.02	0.000	32.88	24.37	0.59	1.81	1.00	1.00	2.10	24.31	87.94	139.8	8,224.4	6334.2	225.62	645.62	871.24
9	63.0	6.25	0.000	35.48	26.57	0.63	1.79	1.00	1.00	2.13	27.28	88.19	142.2	8,561.5	6623.2	258.94	610.28	869.21
10	73.0	6.44	0.000	33.67	25.16	0.60	1.80	1.00	1.00	2.17	25.17	88.40	144.3	8,536.7	6646.5	248.69	686.04	934.72
11	83.0	6.62	0.000	36.22	27.31	0.65	1.78	1.00	1.00	2.19	28.15	88.58	146.2	8,843.3	6905.0	282.39	639.92	922.31
12	93.0	6.78	0.000	34.29	25.78	0.61	1.80	1.00	1.00	2.22	25.85	88.75	147.8	8,784.6	6894.4	267.88	717.62	985.50
13	103.0	6.93	0.000	36.82	27.91	0.65	1.78	1.00	1.00	2.24	28.85	87.84	146.4	8,971.9	7051.0	302.43	653.58	956.02
14	113.0	7.06	0.000	34.80	26.28	0.62	1.79	1.00	1.00	2.26	26.41	72.24	142.5	8,212.8	6452.4	284.52	664.24	948.75
15	123.0	7.19	0.000	37.32	28.41	0.66	1.78	1.00	1.00	2.28	29.44	61.99	140.6	8,046.4	6310.0	320.11	571.98	892.09
16	133.0	7.31	0.000	35.23	26.72	0.63	1.79	1.00	1.00	2.30	26.90	50.13	113.6	6,970.6	5372.7	299.33	527.88	827.21
17	143.0	7.42	0.000	38.39	28.84	0.68	1.78	1.00	1.00	2.32	30.80	44.34	97.46	6,915.3	5157.4	345.20	417.14	762.34
18	153.0	7.53	0.000	36.15	27.09	0.64	1.78	1.00	1.00	2.33	28.00	41.77	89.38	6,485.1	4820.7	319.75	435.73	755.48
19	163.0	7.63	0.000	37.93	29.22	0.67	1.78	1.00	1.00	2.35	30.20	24.29	87.40	5,701.1	4311.0	348.05	350.47	698.52
20	173.0	7.73	0.000	35.74	27.43	0.63	1.79	1.00	1.00	2.36	27.50	18.57	82.61	5,224.1	3922.1	322.70	352.93	675.63
21	183.0	7.82	0.000	38.27	29.56	0.68	1.78	1.00	1.00	2.37	30.62	17.25	79.91	5,345.1	4005.0	361.44	315.55	676.99
22	193.0	7.91	0.000	36.04	27.73	0.64	1.78	1.00	1.00	2.39	27.85	16.74	78.75	5,135.9	3847.0	334.06	341.75	675.81
23	203.0	7.99	0.000	38.58	29.87	0.68	1.78	1.00	1.00	2.40	31.00	15.72	73.95	5,235.6	3902.3	373.94	300.48	674.42
24	213.0	8.07	0.000	36.31	28.00	0.64	1.78	1.00	1.00	2.41	28.17	15.45	72.30	5,022.5	3738.4	344.69	323.84	668.53
25	223.0	8.15	0.000	38.86	30.15	0.69	1.78	1.00	1.00	2.42	31.35	13.95	67.39	5,094.5	3772.7	385.68	282.63	668.31
26	233.0	8.23	0.000	36.57	28.26	0.65	1.78	1.00	1.00	2.43	28.46	12.14	54.71	4,617.7	3352.1	354.69	266.28	620.97
27	243.0	8.30	0.000	39.12	30.41	0.69	1.78	1.00	1.00	2.44	31.67	10.60	46.80	4,633.6	3328.9	396.78	223.71	620.49
28	253.0	8.37	0.000	36.80	28.49	0.65	1.78	1.00	1.00	2.45	28.74	8.24	37.02	4,173.1	2932.4	364.16	205.51	569.67
29	263.0	8.44	0.000	39.36	30.65	0.70	1.78	1.00	1.00	2.46	31.97	7.03	31.59	4,244.7	2963.4	407.32	177.50	584.83
30	273.0	8.51	0.000	37.02	28.71	0.66	1.78	1.00	1.00	2.47	28.99	6.65	28.82	3,990.8	2759.0	373.16	179.09	552.25
31	283.0	8.57	0.000	39.58	30.88	0.70	1.78	1.00	1.00	2.48	32.26	6.65	28.93	4,213.7	2933.7	417.38	172.04	589.42
32	293.0	8.63	0.000	37.22	28.91	0.66	1.78	1.00	1.00	2.49	29.23	6.27	19.08	3,827.7	2596.5	381.75	91.25	473.00
33	303.0	8.69	0.000	37.42	29.01	0.66	1.78	1.00	1.00	2.50	29.48	6.18	16.64	3,831.4	2573.2	387.49	68.49	455.98
34	308.5	8.73	0.793	5.48	5.00	1.00	2.10	1.00	1.00	2.50	6.55	0.41	0.96	1,600.9	782.3	102.02	0.00	102.02
														198,520.6	**147749.6**			**22,283.35**

Section Forces

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 17	

Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 1.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	4.62	0.578	14.19	9.44	0.98	2.06	0.80	1.00	1.55	15.25	42.40	52.79	4,045.2	2408.9	123.61	27.58	151.19
2	6.3	4.62	0.290	7.07	4.82	0.53	1.86	0.80	1.00	1.69	5.22	21.45	28.93	2,159.7	1373.3	38.23	122.64	160.87
3	8.8	4.62	0.290	7.09	4.98	0.53	1.86	0.80	1.00	1.75	5.24	21.55	29.92	2,177.8	1403.7	38.35	125.10	163.46
4	14.0	4.62	0.000	27.63	19.89	0.62	1.79	0.80	1.00	1.84	21.07	69.39	100.3	6,050.8	4401.4	148.44	340.87	489.31
5	23.0	5.05	0.000	32.93	24.02	0.59	1.81	0.80	1.00	1.93	24.45	86.99	129.5	7,656.8	5717.9	190.01	510.27	700.29
6	33.0	5.45	0.000	31.75	23.24	0.57	1.83	0.80	1.00	2.00	23.12	87.30	133.3	7,792.7	5902.4	195.72	588.79	784.50
7	43.0	5.76	0.000	34.48	25.58	0.62	1.79	0.80	1.00	2.05	26.15	87.65	136.9	8,192.6	6254.3	229.97	570.25	800.22
8	53.0	6.02	0.000	32.88	24.37	0.59	1.81	0.80	1.00	2.10	24.31	87.94	139.8	8,224.4	6334.2	225.62	645.62	871.24
9	63.0	6.25	0.000	35.48	26.57	0.63	1.79	0.80	1.00	2.13	27.28	88.19	142.2	8,561.5	6623.2	258.94	610.28	869.21
10	73.0	6.44	0.000	33.67	25.16	0.60	1.80	0.80	1.00	2.17	25.17	88.40	144.3	8,536.7	6646.5	248.69	686.04	934.72
11	83.0	6.62	0.000	36.22	27.31	0.65	1.78	0.80	1.00	2.19	28.15	88.58	146.2	8,843.3	6905.0	282.39	639.92	922.31
12	93.0	6.78	0.000	34.29	25.78	0.61	1.80	0.80	1.00	2.22	25.85	88.75	147.8	8,784.6	6894.4	267.88	717.62	985.50
13	103.0	6.93	0.000	36.82	27.91	0.65	1.78	0.80	1.00	2.24	28.85	87.84	146.4	8,971.9	7051.0	302.43	653.58	956.02
14	113.0	7.06	0.000	34.80	26.28	0.62	1.79	0.80	1.00	2.26	26.41	72.24	142.5	8,212.8	6452.4	284.52	664.24	948.75
15	123.0	7.19	0.000	37.32	28.41	0.66	1.78	0.80	1.00	2.28	29.44	61.99	140.6	8,046.4	6310.0	320.11	571.98	892.09
16	133.0	7.31	0.000	35.23	26.72	0.63	1.79	0.80	1.00	2.30	26.90	50.13	113.6	6,970.6	5372.7	299.33	527.88	827.21
17	143.0	7.42	0.000	38.39	28.84	0.68	1.78	0.80	1.00	2.32	30.80	44.34	97.46	6,915.3	5157.4	345.20	417.14	762.34
18	153.0	7.53	0.000	36.15	27.09	0.64	1.78	0.80	1.00	2.33	28.00	41.77	89.38	6,485.1	4820.7	319.75	435.73	755.48
19	163.0	7.63	0.000	37.93	29.22	0.67	1.78	0.80	1.00	2.35	30.20	24.29	87.40	5,701.1	4311.0	348.05	350.47	698.52
20	173.0	7.73	0.000	35.74	27.43	0.63	1.79	0.80	1.00	2.36	27.50	18.57	82.61	5,224.1	3922.1	322.70	352.93	675.63
21	183.0	7.82	0.000	38.27	29.56	0.68	1.78	0.80	1.00	2.37	30.62	17.25	79.91	5,345.1	4005.0	361.44	315.55	676.99
22	193.0	7.91	0.000	36.04	27.73	0.64	1.78	0.80	1.00	2.39	27.85	16.74	78.75	5,135.9	3847.0	334.06	341.75	675.81
23	203.0	7.99	0.000	38.58	29.87	0.68	1.78	0.80	1.00	2.40	31.00	15.72	73.95	5,235.6	3902.3	373.94	300.48	674.42
24	213.0	8.07	0.000	36.31	28.00	0.64	1.78	0.80	1.00	2.41	28.17	15.45	72.30	5,022.5	3738.4	344.69	323.84	668.53
25	223.0	8.15	0.000	38.86	30.15	0.69	1.78	0.80	1.00	2.42	31.35	13.95	67.39	5,094.5	3772.7	385.68	282.63	668.31
26	233.0	8.23	0.000	36.57	28.26	0.65	1.78	0.80	1.00	2.43	28.46	12.14	54.71	4,617.7	3352.1	354.69	266.28	620.97
27	243.0	8.30	0.000	39.12	30.41	0.69	1.78	0.80	1.00	2.44	31.67	10.60	46.80	4,633.6	3328.9	396.78	223.71	620.49
28	253.0	8.37	0.000	36.80	28.49	0.65	1.78	0.80	1.00	2.45	28.74	8.24	37.02	4,173.1	2932.4	364.16	205.51	569.67
29	263.0	8.44	0.000	39.36	30.65	0.70	1.78	0.80	1.00	2.46	31.97	7.03	31.59	4,244.7	2963.4	407.32	177.50	584.83
30	273.0	8.51	0.000	37.02	28.71	0.66	1.78	0.80	1.00	2.47	28.99	6.65	28.82	3,990.8	2759.0	373.16	179.09	552.25
31	283.0	8.57	0.000	39.58	30.88	0.70	1.78	0.80	1.00	2.48	32.26	6.65	28.93	4,213.7	2933.7	417.38	172.04	589.42
32	293.0	8.63	0.000	37.22	28.91	0.66	1.78	0.80	1.00	2.49	29.23	6.27	19.08	3,827.7	2596.5	381.75	91.25	473.00
33	303.0	8.69	0.000	37.42	29.01	0.66	1.78	0.80	1.00	2.50	29.48	6.18	16.64	3,831.4	2573.2	387.49	68.49	455.98
34	308.5	8.73	0.793	5.48	5.00	1.00	2.10	0.80	1.00	2.50	6.39	0.41	0.96	1,600.9	782.3	99.55	0.00	99.55
														198,520.6	**147749.6**			**22,279.09**

Section Forces

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 18	

Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 1.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	4.62	0.578	14.19	9.44	0.98	2.06	0.85	1.00	1.55	15.27	42.40	52.79	4,045.2	2408.9	123.85	27.58	151.43
2	6.3	4.62	0.290	7.07	4.82	0.53	1.86	0.85	1.00	1.69	5.24	21.45	28.93	2,159.7	1373.3	38.34	122.64	160.98
3	8.8	4.62	0.290	7.09	4.98	0.53	1.86	0.85	1.00	1.75	5.26	21.55	29.92	2,177.8	1403.7	38.46	125.10	163.56
4	14.0	4.62	0.000	27.63	19.89	0.62	1.79	0.85	1.00	1.84	21.07	69.39	100.3	6,050.8	4401.4	148.44	340.87	489.31
5	23.0	5.05	0.000	32.93	24.02	0.59	1.81	0.85	1.00	1.93	24.45	86.99	129.5	7,656.8	5717.9	190.01	510.27	700.29
6	33.0	5.45	0.000	31.75	23.24	0.57	1.83	0.85	1.00	2.00	23.12	87.30	133.3	7,792.7	5902.4	195.72	588.79	784.50
7	43.0	5.76	0.000	34.48	25.58	0.62	1.79	0.85	1.00	2.05	26.15	87.65	136.9	8,192.6	6254.3	229.97	570.25	800.22
8	53.0	6.02	0.000	32.88	24.37	0.59	1.81	0.85	1.00	2.10	24.31	87.94	139.8	8,224.4	6334.2	225.62	645.62	871.24
9	63.0	6.25	0.000	35.48	26.57	0.63	1.79	0.85	1.00	2.13	27.28	88.19	142.2	8,561.5	6623.2	258.94	610.28	869.21
10	73.0	6.44	0.000	33.67	25.16	0.60	1.80	0.85	1.00	2.17	25.17	88.40	144.3	8,536.7	6646.5	248.69	686.04	934.72
11	83.0	6.62	0.000	36.22	27.31	0.65	1.78	0.85	1.00	2.19	28.15	88.58	146.2	8,843.3	6905.0	282.39	639.92	922.31
12	93.0	6.78	0.000	34.29	25.78	0.61	1.80	0.85	1.00	2.22	25.85	88.75	147.8	8,784.6	6894.4	267.88	717.62	985.50
13	103.0	6.93	0.000	36.82	27.91	0.65	1.78	0.85	1.00	2.24	28.85	87.84	146.4	8,971.9	7051.0	302.43	653.58	956.02
14	113.0	7.06	0.000	34.80	26.28	0.62	1.79	0.85	1.00	2.26	26.41	72.24	142.5	8,212.8	6452.4	284.52	664.24	948.75
15	123.0	7.19	0.000	37.32	28.41	0.66	1.78	0.85	1.00	2.28	29.44	61.99	140.6	8,046.4	6310.0	320.11	571.98	892.09
16	133.0	7.31	0.000	35.23	26.72	0.63	1.79	0.85	1.00	2.30	26.90	50.13	113.6	6,970.6	5372.7	299.33	527.88	827.21
17	143.0	7.42	0.000	38.39	28.84	0.68	1.78	0.85	1.00	2.32	30.80	44.34	97.46	6,915.3	5157.4	345.20	417.14	762.34
18	153.0	7.53	0.000	36.15	27.09	0.64	1.78	0.85	1.00	2.33	28.00	41.77	89.38	6,485.1	4820.7	319.75	435.73	755.48
19	163.0	7.63	0.000	37.93	29.22	0.67	1.78	0.85	1.00	2.35	30.20	24.29	87.40	5,701.1	4311.0	348.05	350.47	698.52
20	173.0	7.73	0.000	35.74	27.43	0.63	1.79	0.85	1.00	2.36	27.50	18.57	82.61	5,224.1	3922.1	322.70	352.93	675.63
21	183.0	7.82	0.000	38.27	29.56	0.68	1.78	0.85	1.00	2.37	30.62	17.25	79.91	5,345.1	4005.0	361.44	315.55	676.99
22	193.0	7.91	0.000	36.04	27.73	0.64	1.78	0.85	1.00	2.39	27.85	16.74	78.75	5,135.9	3847.0	334.06	341.75	675.81
23	203.0	7.99	0.000	38.58	29.87	0.68	1.78	0.85	1.00	2.40	31.00	15.72	73.95	5,235.6	3902.3	373.94	300.48	674.42
24	213.0	8.07	0.000	36.31	28.00	0.64	1.78	0.85	1.00	2.41	28.17	15.45	72.30	5,022.5	3738.4	344.69	323.84	668.53
25	223.0	8.15	0.000	38.86	30.15	0.69	1.78	0.85	1.00	2.42	31.35	13.95	67.39	5,094.5	3772.7	385.68	282.63	668.31
26	233.0	8.23	0.000	36.57	28.26	0.65	1.78	0.85	1.00	2.43	28.46	12.14	54.71	4,617.7	3352.1	354.69	266.28	620.97
27	243.0	8.30	0.000	39.12	30.41	0.69	1.78	0.85	1.00	2.44	31.67	10.60	46.80	4,633.6	3328.9	396.78	223.71	620.49
28	253.0	8.37	0.000	36.80	28.49	0.65	1.78	0.85	1.00	2.45	28.74	8.24	37.02	4,173.1	2932.4	364.16	205.51	569.67
29	263.0	8.44	0.000	39.36	30.65	0.70	1.78	0.85	1.00	2.46	31.97	7.03	31.59	4,244.7	2963.4	407.32	177.50	584.83
30	273.0	8.51	0.000	37.02	28.71	0.66	1.78	0.85	1.00	2.47	28.99	6.65	28.82	3,990.8	2759.0	373.16	179.09	552.25
31	283.0	8.57	0.000	39.58	30.88	0.70	1.78	0.85	1.00	2.48	32.26	6.65	28.93	4,213.7	2933.7	417.38	172.04	589.42
32	293.0	8.63	0.000	37.22	28.91	0.66	1.78	0.85	1.00	2.49	29.23	6.27	19.08	3,827.7	2596.5	381.75	91.25	473.00
33	303.0	8.69	0.000	37.42	29.01	0.66	1.78	0.85	1.00	2.50	29.48	6.18	16.64	3,831.4	2573.2	387.49	68.49	455.98
34	308.5	8.73	0.793	5.48	5.00	1.00	2.10	0.85	1.00	2.50	6.43	0.41	0.96	1,600.9	782.3	100.17	0.00	100.17
														198,520.6	**147749.6**			**22,280.16**

Section Forces

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 19	

Load Case: 1.0D + 1.0W Normal Wind — 1.0D + 1.0W 60 mph Wind at Normal To Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	6.66	0.578	4.75	0.00	0.39	2.09	1.00	1.00	0.00	3.64	37.36	0.00	1,363.6	0.0	43.02	166.78	209.80
2	6.3	6.66	0.290	2.25	0.00	0.19	2.62	1.00	1.00	0.00	1.60	18.68	0.00	655.3	0.0	23.72	83.39	107.11
3	8.8	6.66	0.290	2.11	0.00	0.18	2.66	1.00	1.00	0.00	1.52	18.68	0.00	645.1	0.0	22.77	83.39	106.16
4	14.0	6.66	0.000	7.75	0.00	0.18	2.65	1.00	1.00	0.00	4.53	59.77	0.00	1,374.5	0.0	67.97	266.85	334.81
5	23.0	7.28	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	74.33	0.00	1,615.7	0.0	86.55	362.80	449.35
6	33.0	7.85	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	74.17	0.00	1,575.2	0.0	89.84	390.67	480.51
7	43.0	8.30	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	74.17	0.00	1,615.3	0.0	98.74	413.06	511.79
8	53.0	8.67	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	74.17	0.00	1,575.2	0.0	99.27	431.64	530.91
9	63.0	9.00	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	74.17	0.00	1,615.3	0.0	107.00	447.64	554.64
10	73.0	9.28	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	74.17	0.00	1,575.2	0.0	106.19	461.74	567.93
11	83.0	9.53	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	74.17	0.00	1,615.3	0.0	113.40	474.39	587.79
12	93.0	9.76	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	74.17	0.00	1,575.2	0.0	111.74	485.89	597.63
13	103.0	9.98	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	73.10	0.00	1,600.7	0.0	118.67	489.94	608.61
14	113.0	10.17	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	61.77	0.00	1,467.0	0.0	116.42	415.87	532.29
15	123.0	10.36	0.000	8.91	0.00	0.17	2.70	1.00	1.00	0.00	5.18	54.39	0.00	1,447.1	0.0	123.19	367.68	490.86
16	133.0	10.53	0.000	8.51	0.00	0.16	2.73	1.00	1.00	0.00	4.94	42.46	0.00	1,331.5	0.0	120.48	296.95	417.43
17	143.0	10.69	0.000	9.55	0.00	0.18	2.66	1.00	1.00	0.00	5.58	36.62	0.00	1,464.9	0.0	134.82	263.27	398.09
18	153.0	10.84	0.000	9.05	0.00	0.17	2.69	1.00	1.00	0.00	5.27	34.00	0.00	1,387.0	0.0	130.76	249.65	380.40
19	163.0	10.99	0.000	8.70	0.00	0.17	2.71	1.00	1.00	0.00	5.06	22.72	0.00	1,158.4	0.0	128.21	159.40	287.61
20	173.0	11.13	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	18.57	0.00	1,085.0	0.0	124.77	128.62	253.39
21	183.0	11.26	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	17.25	0.00	1,116.8	0.0	131.36	121.05	252.42
22	193.0	11.39	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	16.74	0.00	1,074.0	0.0	127.68	118.83	246.51
23	203.0	11.51	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	15.72	0.00	1,111.0	0.0	134.26	112.98	247.24
24	213.0	11.63	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	15.45	0.00	1,070.1	0.0	130.36	112.20	242.56
25	223.0	11.74	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	13.95	0.00	1,101.5	0.0	136.95	102.49	239.44
26	233.0	11.85	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	12.14	0.00	1,054.6	0.0	132.85	90.34	223.18
27	243.0	11.95	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	10.60	0.00	1,087.2	0.0	139.45	79.85	219.30
28	253.0	12.05	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	8.24	0.00	1,033.9	0.0	135.17	63.12	198.29
29	263.0	12.15	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	7.03	0.00	1,067.7	0.0	141.79	54.67	196.45
30	273.0	12.25	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	6.65	0.00	1,026.5	0.0	137.35	52.25	189.61
31	283.0	12.34	0.000	8.71	0.00	0.17	2.71	1.00	1.00	0.00	5.06	6.65	0.00	1,066.6	0.0	143.99	52.65	196.64
32	293.0	12.43	0.000	8.31	0.00	0.16	2.74	1.00	1.00	0.00	4.81	6.27	0.00	1,026.0	0.0	139.41	48.22	187.63
33	303.0	12.52	0.000	8.41	0.00	0.16	2.73	1.00	1.00	0.00	4.88	6.18	0.00	1,048.5	0.0	141.83	47.35	189.17
34	308.5	12.57	0.793	0.48	0.00	0.24	2.46	1.00	1.00	0.00	1.07	0.41	0.00	682.2	0.0	28.18	3.16	31.34
														42,309.2	**0.0**			**11,266.92**

Section Forces

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 20	

Load Case: 1.0D + 1.0W 60° Wind — 1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	6.66	0.578	4.75	0.00	0.39	2.09	0.80	1.00	0.00	3.52	37.36	0.00	1,363.6	0.0	41.66	166.78	208.44
2	6.3	6.66	0.290	2.25	0.00	0.19	2.62	0.80	1.00	0.00	1.54	18.68	0.00	655.3	0.0	22.86	83.39	106.25
3	8.8	6.66	0.290	2.11	0.00	0.18	2.66	0.80	1.00	0.00	1.46	18.68	0.00	645.1	0.0	21.90	83.39	105.29
4	14.0	6.66	0.000	7.75	0.00	0.18	2.65	0.80	1.00	0.00	4.53	59.77	0.00	1,374.5	0.0	67.97	266.85	334.81
5	23.0	7.28	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	74.33	0.00	1,615.7	0.0	86.55	362.80	449.35
6	33.0	7.85	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	74.17	0.00	1,575.2	0.0	89.84	390.67	480.51
7	43.0	8.30	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	74.17	0.00	1,615.3	0.0	98.74	413.06	511.79
8	53.0	8.67	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	74.17	0.00	1,575.2	0.0	99.27	431.64	530.91
9	63.0	9.00	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	74.17	0.00	1,615.3	0.0	107.00	447.64	554.64
10	73.0	9.28	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	74.17	0.00	1,575.2	0.0	106.19	461.74	567.93
11	83.0	9.53	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	74.17	0.00	1,615.3	0.0	113.40	474.39	587.79
12	93.0	9.76	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	74.17	0.00	1,575.2	0.0	111.74	485.89	597.63
13	103.0	9.98	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	73.10	0.00	1,600.7	0.0	118.67	489.94	608.61
14	113.0	10.17	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	61.77	0.00	1,467.0	0.0	116.42	415.87	532.29
15	123.0	10.36	0.000	8.91	0.00	0.17	2.70	0.80	1.00	0.00	5.18	54.39	0.00	1,447.1	0.0	123.19	367.68	490.86
16	133.0	10.53	0.000	8.51	0.00	0.16	2.73	0.80	1.00	0.00	4.94	42.46	0.00	1,331.5	0.0	120.48	296.95	417.43
17	143.0	10.69	0.000	9.55	0.00	0.18	2.66	0.80	1.00	0.00	5.58	36.62	0.00	1,464.9	0.0	134.82	263.27	398.09
18	153.0	10.84	0.000	9.05	0.00	0.17	2.69	0.80	1.00	0.00	5.27	34.00	0.00	1,387.0	0.0	130.76	249.65	380.40
19	163.0	10.99	0.000	8.70	0.00	0.17	2.71	0.80	1.00	0.00	5.06	22.72	0.00	1,158.4	0.0	128.21	159.40	287.61
20	173.0	11.13	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	18.57	0.00	1,085.0	0.0	124.77	128.62	253.39
21	183.0	11.26	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	17.25	0.00	1,116.8	0.0	131.36	121.05	252.42
22	193.0	11.39	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	16.74	0.00	1,074.0	0.0	127.68	118.83	246.51
23	203.0	11.51	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	15.72	0.00	1,111.0	0.0	134.26	112.98	247.24
24	213.0	11.63	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	15.45	0.00	1,070.1	0.0	130.36	112.20	242.56
25	223.0	11.74	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	13.95	0.00	1,101.5	0.0	136.95	102.49	239.44
26	233.0	11.85	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	12.14	0.00	1,054.6	0.0	132.85	90.34	223.18
27	243.0	11.95	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	10.60	0.00	1,087.2	0.0	139.45	79.85	219.30
28	253.0	12.05	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	8.24	0.00	1,033.9	0.0	135.17	63.12	198.29
29	263.0	12.15	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	7.03	0.00	1,067.7	0.0	141.79	54.67	196.45
30	273.0	12.25	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	6.65	0.00	1,026.5	0.0	137.35	52.25	189.61
31	283.0	12.34	0.000	8.71	0.00	0.17	2.71	0.80	1.00	0.00	5.06	6.65	0.00	1,066.6	0.0	143.99	52.65	196.64
32	293.0	12.43	0.000	8.31	0.00	0.16	2.74	0.80	1.00	0.00	4.81	6.27	0.00	1,026.0	0.0	139.41	48.22	187.63
33	303.0	12.52	0.000	8.41	0.00	0.16	2.73	0.80	1.00	0.00	4.88	6.18	0.00	1,048.5	0.0	141.83	47.35	189.17
34	308.5	12.57	0.793	0.48	0.00	0.24	2.46	0.80	1.00	0.00	0.91	0.41	0.00	682.2	0.0	24.02	3.16	27.17
														42,309.2	**0.0**			**11,259.66**

Section Forces

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 21	

Load Case: 1.0D + 1.0W 90° Wind — 1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

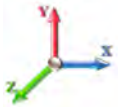
Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	2.5	6.66	0.578	4.75	0.00	0.39	2.09	0.85	1.00	0.00	3.55	37.36	0.00	1,363.6	0.0	42.00	166.78	208.78
2	6.3	6.66	0.290	2.25	0.00	0.19	2.62	0.85	1.00	0.00	1.56	18.68	0.00	655.3	0.0	23.07	83.39	106.46
3	8.8	6.66	0.290	2.11	0.00	0.18	2.66	0.85	1.00	0.00	1.47	18.68	0.00	645.1	0.0	22.12	83.39	105.51
4	14.0	6.66	0.000	7.75	0.00	0.18	2.65	0.85	1.00	0.00	4.53	59.77	0.00	1,374.5	0.0	67.97	266.85	334.81
5	23.0	7.28	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	74.33	0.00	1,615.7	0.0	86.55	362.80	449.35
6	33.0	7.85	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	74.17	0.00	1,575.2	0.0	89.84	390.67	480.51
7	43.0	8.30	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	74.17	0.00	1,615.3	0.0	98.74	413.06	511.79
8	53.0	8.67	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	74.17	0.00	1,575.2	0.0	99.27	431.64	530.91
9	63.0	9.00	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	74.17	0.00	1,615.3	0.0	107.00	447.64	554.64
10	73.0	9.28	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	74.17	0.00	1,575.2	0.0	106.19	461.74	567.93
11	83.0	9.53	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	74.17	0.00	1,615.3	0.0	113.40	474.39	587.79
12	93.0	9.76	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	74.17	0.00	1,575.2	0.0	111.74	485.89	597.63
13	103.0	9.98	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	73.10	0.00	1,600.7	0.0	118.67	489.94	608.61
14	113.0	10.17	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	61.77	0.00	1,467.0	0.0	116.42	415.87	532.29
15	123.0	10.36	0.000	8.91	0.00	0.17	2.70	0.85	1.00	0.00	5.18	54.39	0.00	1,447.1	0.0	123.19	367.68	490.86
16	133.0	10.53	0.000	8.51	0.00	0.16	2.73	0.85	1.00	0.00	4.94	42.46	0.00	1,331.5	0.0	120.48	296.95	417.43
17	143.0	10.69	0.000	9.55	0.00	0.18	2.66	0.85	1.00	0.00	5.58	36.62	0.00	1,464.9	0.0	134.82	263.27	398.09
18	153.0	10.84	0.000	9.05	0.00	0.17	2.69	0.85	1.00	0.00	5.27	34.00	0.00	1,387.0	0.0	130.76	249.65	380.40
19	163.0	10.99	0.000	8.70	0.00	0.17	2.71	0.85	1.00	0.00	5.06	22.72	0.00	1,158.4	0.0	128.21	159.40	287.61
20	173.0	11.13	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	18.57	0.00	1,085.0	0.0	124.77	128.62	253.39
21	183.0	11.26	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	17.25	0.00	1,116.8	0.0	131.36	121.05	252.42
22	193.0	11.39	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	16.74	0.00	1,074.0	0.0	127.68	118.83	246.51
23	203.0	11.51	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	15.72	0.00	1,111.0	0.0	134.26	112.98	247.24
24	213.0	11.63	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	15.45	0.00	1,070.1	0.0	130.36	112.20	242.56
25	223.0	11.74	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	13.95	0.00	1,101.5	0.0	136.95	102.49	239.44
26	233.0	11.85	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	12.14	0.00	1,054.6	0.0	132.85	90.34	223.18
27	243.0	11.95	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	10.60	0.00	1,087.2	0.0	139.45	79.85	219.30
28	253.0	12.05	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	8.24	0.00	1,033.9	0.0	135.17	63.12	198.29
29	263.0	12.15	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	7.03	0.00	1,067.7	0.0	141.79	54.67	196.45
30	273.0	12.25	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	6.65	0.00	1,026.5	0.0	137.35	52.25	189.61
31	283.0	12.34	0.000	8.71	0.00	0.17	2.71	0.85	1.00	0.00	5.06	6.65	0.00	1,066.6	0.0	143.99	52.65	196.64
32	293.0	12.43	0.000	8.31	0.00	0.16	2.74	0.85	1.00	0.00	4.81	6.27	0.00	1,026.0	0.0	139.41	48.22	187.63
33	303.0	12.52	0.000	8.41	0.00	0.16	2.73	0.85	1.00	0.00	4.88	6.18	0.00	1,048.5	0.0	141.83	47.35	189.17
34	308.5	12.57	0.793	0.48	0.00	0.24	2.46	0.85	1.00	0.00	0.95	0.41	0.00	682.2	0.0	25.06	3.16	28.22
														42,309.2	**0.0**			**11,261.47**

Force/Stress Compression Summary

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 22	



TES Tower Engineering Solutions

LEG MEMBERS

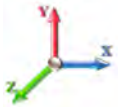
Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	5	SOL - 3" SOLID	-152.18	1.2D + 1.0Di + 1.0Wi 90° Wind	1.92	50	50	50	15.40	50.00	312.64	48.7	Member X
2	7.5	SOL - 3" SOLID	-130.80	1.2D + 1.0Di + 1.0Wi 90° Wind	2.50	50	50	50	20.00	50.00	308.94	42.3	Member X
3	10	SOL - 3" SOLID	-134.22	1.2D + 1.0Di + 1.0Wi 60° Wind	2.50	50	50	50	20.00	50.00	308.94	43.4	Member X
4	18	SOL - 3" SOLID	-136.88	1.2D + 1.0Di + 1.0Wi 60° Wind	2.67	100	100	100	42.67	50.00	278.46	49.2	Member X
5	28	SOL - 3" SOLID	-142.80	1.2D + 1.0Di + 1.0Wi 60° Wind	2.50	100	100	100	40.00	50.00	282.98	50.5	Member X
6	38	SOL - 3" SOLID	-145.38	1.2D + 1.0Di + 1.0Wi 60° Wind	2.50	100	100	100	40.00	50.00	282.98	51.4	Member X
7	48	SOL - 3" SOLID	-146.11	1.2D + 1.0Di + 1.0Wi 60° Wind	2.50	100	100	100	40.00	50.00	282.98	51.6	Member X
8	58	SOL - 3" SOLID	-144.95	1.2D + 1.0Di + 1.0Wi 60° Wind	2.50	100	100	100	40.00	50.00	282.98	51.2	Member X
9	68	SOL - 3" SOLID	-141.79	1.2D + 1.0Di + 1.0Wi 60° Wind	2.50	100	100	100	40.00	50.00	282.98	50.1	Member X
10	78	SOL - 3" SOLID	-136.11	1.2D + 1.0Di + 1.0Wi 60° Wind	2.50	100	100	100	40.00	50.00	282.98	48.1	Member X
11	88	SOL - 3" SOLID	-127.70	1.2D + 1.0Di + 1.0Wi 60° Wind	2.50	100	100	100	40.00	50.00	282.98	45.1	Member X
12	98	SOL - 3" SOLID	-111.41	1.2D + 1.0Di + 1.0Wi 90° Wind	2.50	100	100	100	40.00	50.00	282.98	39.4	Member X
13	108	SOL - 3" SOLID	-112.09	1.2D + 1.0Di + 1.0Wi 90° Wind	2.50	100	100	100	40.00	50.00	282.98	39.6	Member X
14	118	SOL - 3" SOLID	-110.73	1.2D + 1.0Di + 1.0Wi 60° Wind	2.50	100	100	100	40.00	50.00	282.98	39.1	Member X
15	128	SOL - 3" SOLID	-104.96	1.2D + 1.6W 90° Wind	2.50	100	100	100	40.00	50.00	282.98	37.1	Member X
16	138	SOL - 3" SOLID	-96.26	1.2D + 1.0Di + 1.0Wi 90° Wind	2.50	100	100	100	40.00	50.00	282.98	34.0	Member X
17	148	SOL - 3" SOLID	-85.32	1.2D + 1.0Di + 1.0Wi 90° Wind	2.50	100	100	100	40.00	50.00	282.98	30.1	Member X
18	158	SOL - 3" SOLID	-69.27	1.2D + 1.0Di + 1.0Wi 90° Wind	2.50	100	100	100	40.00	50.00	282.98	24.5	Member X
19	168	SOL - 2 7/8" SOLID	-66.31	1.2D + 1.0Di + 1.0Wi Normal	2.50	100	100	100	41.78	50.00	257.05	25.8	Member X
20	178	SOL - 2 7/8" SOLID	-64.32	1.2D + 1.0Di + 1.0Wi 90° Wind	2.50	100	100	100	41.78	50.00	257.05	25.0	Member X
21	188	SOL - 2 7/8" SOLID	-64.09	1.2D + 1.0Di + 1.0Wi 90° Wind	2.50	100	100	100	41.78	50.00	257.05	24.9	Member X
22	198	SOL - 2 7/8" SOLID	-62.60	1.2D + 1.0Di + 1.0Wi 90° Wind	2.50	100	100	100	41.78	50.00	257.05	24.4	Member X
23	208	SOL - 2 7/8" SOLID	-59.48	1.2D + 1.0Di + 1.0Wi 90° Wind	2.50	100	100	100	41.78	50.00	257.05	23.1	Member X
24	218	SOL - 2 7/8" SOLID	-54.33	1.2D + 1.0Di + 1.0Wi Normal	2.50	100	100	100	41.78	50.00	257.05	21.1	Member X
25	228	SOL - 2 7/8" SOLID	-49.84	1.2D + 1.0Di + 1.0Wi 90° Wind	2.50	100	100	100	41.78	50.00	257.05	19.4	Member X
26	238	SOL - 2 7/8" SOLID	-38.69	1.2D + 1.0Di + 1.0Wi Normal	2.50	100	100	100	41.78	50.00	257.05	15.1	Member X
27	248	SOL - 2 7/8" SOLID	-30.40	1.2D + 1.0Di + 1.0Wi 60° Wind	2.50	100	100	100	41.78	50.00	257.05	11.8	Member X
28	258	SOL - 2 7/8" SOLID	-27.49	1.2D + 1.0Di + 1.0Wi 90° Wind	2.50	100	100	100	41.78	50.00	257.05	10.7	Member X
29	268	SOL - 2 7/8" SOLID	-26.87	1.2D + 1.0Di + 1.0Wi Normal	2.50	100	100	100	41.78	50.00	257.05	10.5	Member X
30	278	SOL - 2 7/8" SOLID	-25.27	1.2D + 1.0Di + 1.0Wi Normal	2.50	100	100	100	41.78	50.00	257.05	9.8	Member X
31	288	SOL - 2 7/8" SOLID	-23.02	1.2D + 1.0Di + 1.0Wi Normal	2.50	100	100	100	41.78	50.00	257.05	9.0	Member X
32	298	SOL - 2 7/8" SOLID	-25.40	1.2D + 1.6W Normal Wind	2.50	100	100	100	41.78	50.00	257.05	9.9	Member X
33	308	SOL - 2 7/8" SOLID	-22.83	1.2D + 1.6W Normal Wind	2.50	100	100	100	41.78	50.00	257.05	8.9	Member X
34	309	SOL - 2 7/8" SOLID	-0.92	1.2D + 1.0Di + 1.0Wi Normal	1.00	100	100	100	16.71	50.00	286.15	0.3	Member X

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	5										0.00	0	0				
2	7.5										0.00	0	0				
3	10	PLT - 6" x 3/4"	-2.87	0.9D + 1.6W 90° Wind	2.50	100	100	100	96.77	50.00	102.10	0	0			3	Member Y
4	18										0.00	0	0				
5	28										0.00	0	0				
6	38	SOL - 1" SOLID	-0.01	0.9D + 1.6W 60° Wind	5.00	100	100	100	168.00	50.00	6.29	0	0			0	Member X
7	48	SOL - 1" SOLID	-0.03	0.9D + 1.6W 60° Wind	5.00	100	100	100	168.00	50.00	6.29	0	0			1	Member X
8	58	SOL - 1" SOLID	-0.03	0.9D + 1.6W 60° Wind	5.00	100	100	100	168.00	50.00	6.29	0	0			1	Member X
9	68	SOL - 1" SOLID	-0.03	0.9D + 1.6W 60° Wind	5.00	100	100	100	168.00	50.00	6.29	0	0			1	Member X
10	78										0.00	0	0				
11	88										0.00	0	0				
12	98										0.00	0	0				
13	108	SOL - 1" SOLID	-0.06	0.9D + 1.6W 60° Wind	5.00	100	100	100	168.00	50.00	6.29	0	0			1	Member X

Force/Stress Compression Summary

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 23	



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HORIZONTAL MEMBERS

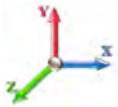
Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
14	118	SOL - 1" SOLID	-0.04	0.9D + 1.6W 60° Wind	5.00	100	100	100	168.00	50.00	6.29	0	0			1	Member X
15	128	SOL - 1" SOLID	-0.04	0.9D + 1.6W 60° Wind	5.00	100	100	100	168.00	50.00	6.29	0	0			1	Member X
16	138										0.00	0	0				
17	148										0.00	0	0				
18	158										0.00	0	0				
19	168										0.00	0	0				
20	178										0.00	0	0				
21	188										0.00	0	0				
22	198	SOL - 1" SOLID	-0.01	0.9D + 1.6W Normal Wind	5.00	100	100	100	168.00	50.00	6.29	0	0			0	Member X
23	208	SOL - 1" SOLID	-0.01	0.9D + 1.6W Normal Wind	5.00	100	100	100	168.00	50.00	6.29	0	0			0	Member X
24	218										0.00	0	0				
25	228										0.00	0	0				
26	238										0.00	0	0				
27	248										0.00	0	0				
28	258	SOL - 1" SOLID	0.00	0.9D + 1.6W 90° Wind	5.00	100	100	100	168.00	50.00	6.29	0	0			0	Member X
29	268	SOL - 1" SOLID	0.00	0.9D + 1.6W 90° Wind	5.00	100	100	100	168.00	50.00	6.29	0	0			0	Member X
30	278										0.00	0	0				
31	288										0.00	0	0				
32	298										0.00	0	0				
33	308	SOL - 1 1/4" SOLID	-0.12	1.2D + 1.0Di + 1.0Wi 60° Wind	5.00	100	100	100	134.40	50.00	15.35	0	0			1	Member X
34	309	PLT - 6"X1"	-2.90	1.2D + 1.6W Normal Wind	5.00	100	100	100	145.48	50.00	64.05	0	0			5	Member Y

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	5	SOL - 1 1/4" SOLID	-8.40	1.2D + 1.0Di + 1.0Wi 90° Wind	3.04	50	50	50	40.90	50.00	48.87	0	0			17	Member X
2	7.5	SOL - 1 1/4" SOLID	-4.97	1.2D + 1.6W 90° Wind	3.54	50	50	50	47.52	50.00	46.82	0	0			11	Member X
3	10	SOL - 1 1/4" SOLID	-5.14	1.2D + 1.6W 90° Wind	3.54	50	50	50	47.52	50.00	46.82	0	0			11	Member X
4	18	SOL - 1" SOLID	-4.89	1.2D + 1.6W Normal Wind	5.67	50	50	50	95.20	50.00	18.22	0	0			27	Member X
5	28	SOL - 7/8" SOLID	-3.34	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			29	Member X
6	38	SOL - 7/8" SOLID	-2.59	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			22	Member X
7	48	SOL - 7/8" SOLID	-1.76	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			15	Member X
8	58	SOL - 7/8" SOLID	-0.84	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			7	Member X
9	68	SOL - 7/8" SOLID	-1.37	1.2D + 1.6W 60° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			12	Member X
10	78	SOL - 7/8" SOLID	-2.21	1.2D + 1.6W 60° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			19	Member X
11	88	SOL - 7/8" SOLID	-3.07	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			26	Member X
12	98	SOL - 7/8" SOLID	-4.01	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			34	Member X
13	108	SOL - 7/8" SOLID	-2.91	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			25	Member X
14	118	SOL - 7/8" SOLID	-1.60	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			14	Member X
15	128	SOL - 7/8" SOLID	-2.39	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			20	Member X
16	138	SOL - 7/8" SOLID	-3.98	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			34	Member X
17	148	SOL - 1" SOLID	-4.84	1.2D + 1.6W 90° Wind	5.59	50	50	50	93.91	50.00	18.55	0	0			26	Member X
18	158	SOL - 1" SOLID	-3.30	0.9D + 1.6W 60° Wind	5.59	50	50	50	93.91	50.00	18.55	0	0			18	Member X
19	168	SOL - 7/8" SOLID	-2.37	1.2D + 1.6W 60° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			20	Member X
20	178	SOL - 7/8" SOLID	-0.86	1.2D + 1.6W 60° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			7	Member X
21	188	SOL - 7/8" SOLID	-0.87	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			7	Member X
22	198	SOL - 7/8" SOLID	-1.36	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			12	Member X
23	208	SOL - 7/8" SOLID	-1.90	1.2D + 1.6W Normal Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			16	Member X
24	218	SOL - 7/8" SOLID	-2.24	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			19	Member X
25	228	SOL - 7/8" SOLID	-2.90	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			25	Member X
26	238	SOL - 7/8" SOLID	-2.69	0.9D + 1.6W 60° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			23	Member X

Force/Stress Compression Summary

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 24	



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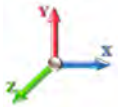
DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
27	248	SOL - 7/8" SOLID	-1.41	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			12	Member X
28	258	SOL - 7/8" SOLID	-1.12	0.9D + 1.6W Normal Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			10	Member X
29	268	SOL - 7/8" SOLID	-0.38	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			3	Member X
30	278	SOL - 7/8" SOLID	-0.60	1.2D + 1.6W Normal Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			5	Member X
31	288	SOL - 7/8" SOLID	-0.85	1.2D + 1.6W Normal Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			7	Member X
32	298	SOL - 7/8" SOLID	-1.24	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			11	Member X
33	308	SOL - 7/8" SOLID	-6.68	1.2D + 1.6W 90° Wind	5.59	50	50	50	107.31	50.00	11.66	0	0			57	Member X
34	309				0.00						0.00	0	0				

Force/Stress Tension Summary

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 25	



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LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	5				0	0.00		
2	7.5				0	0.00		
3	10				0	0.00		
4	18				0	0.00		
5	28	SOL - 3" SOLID	10.34	0.9D + 1.6W Normal Wind	50	318.11	3.2	Member
6	38	SOL - 3" SOLID	25.02	0.9D + 1.6W Normal Wind	50	318.11	7.9	Member
7	48	SOL - 3" SOLID	34.46	0.9D + 1.6W Normal Wind	50	318.11	10.8	Member
8	58	SOL - 3" SOLID	38.35	0.9D + 1.6W Normal Wind	50	318.11	12.1	Member
9	68	SOL - 3" SOLID	38.44	0.9D + 1.6W Normal Wind	50	318.11	12.1	Member
10	78	SOL - 3" SOLID	35.09	0.9D + 1.6W Normal Wind	50	318.11	11.0	Member
11	88	SOL - 3" SOLID	25.86	0.9D + 1.6W Normal Wind	50	318.11	8.1	Member
12	98	SOL - 3" SOLID	32.36	0.9D + 1.6W Normal Wind	50	318.11	10.2	Member
13	108	SOL - 3" SOLID	46.34	0.9D + 1.6W Normal Wind	50	318.11	14.6	Member
14	118	SOL - 3" SOLID	50.90	0.9D + 1.6W Normal Wind	50	318.11	16.0	Member
15	128	SOL - 3" SOLID	46.33	0.9D + 1.6W Normal Wind	50	318.11	14.6	Member
16	138	SOL - 3" SOLID	33.46	0.9D + 1.6W Normal Wind	50	318.11	10.5	Member
17	148	SOL - 3" SOLID	11.53	0.9D + 1.6W Normal Wind	50	318.11	3.6	Member
18	158	SOL - 3" SOLID	4.91	0.9D + 1.6W 90° Wind	50	318.11	1.5	Member
19	168	SOL - 2 7/8" SOLID	12.90	0.9D + 1.6W 90° Wind	50	292.05	4.4	Member
20	178	SOL - 2 7/8" SOLID	14.12	0.9D + 1.6W 90° Wind	50	292.05	4.8	Member
21	188	SOL - 2 7/8" SOLID	14.10	0.9D + 1.6W 90° Wind	50	292.05	4.8	Member
22	198	SOL - 2 7/8" SOLID	11.66	0.9D + 1.6W 90° Wind	50	292.05	4.0	Member
23	208	SOL - 2 7/8" SOLID	6.01	0.9D + 1.6W 90° Wind	50	292.05	2.1	Member
24	218				0	0.00		
25	228				0	0.00		
26	238	SOL - 2 7/8" SOLID	11.31	0.9D + 1.6W 60° Wind	50	292.05	3.9	Member
27	248	SOL - 2 7/8" SOLID	0.41	0.9D + 1.6W 60° Wind	50	292.05	0.1	Member
28	258				0	0.00		
29	268				0	0.00		
30	278				0	0.00		
31	288				0	0.00		
32	298	SOL - 2 7/8" SOLID	1.47	0.9D + 1.6W 60° Wind	50	292.05	0.5	Member
33	308	SOL - 2 7/8" SOLID	18.93	0.9D + 1.6W 60° Wind	50	292.05	6.5	Member
34	309				0	0.00		

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	5	PLT - 6" x 3/4"	21.93	1.2D + 1.0Di + 1.0Wi 90	50	202.50	0	0				10.8	Member
2	7.5	PLT - 6" x 3/4"	23.01	1.2D + 1.0Di + 1.0Wi 90	50	202.50	0	0				11.4	Member
3	10	PLT - 6" x 3/4"	4.50	1.2D + 1.6W Normal Wi	50	202.50	0	0				2.2	Member
4	18	SOL - 7/8" SOLID	2.46	1.2D + 1.0Di + 1.0Wi No	50	27.06	0	0				9.1	Member
5	28	SOL - 1" SOLID	1.11	1.2D + 1.0Di + 1.0Wi No	50	35.34	0	0				3.1	Member
6	38	SOL - 1" SOLID	0.62	1.2D + 1.0Di + 1.0Wi No	50	35.34	0	0				1.8	Member
7	48	SOL - 1" SOLID	1.05	1.2D + 1.0Di + 1.0Wi No	50	35.34	0	0				3.0	Member
8	58	SOL - 1" SOLID	0.61	1.2D + 1.0Di + 1.0Wi No	50	35.34	0	0				1.7	Member
9	68	SOL - 1" SOLID	1.01	1.2D + 1.0Di + 1.0Wi No	50	35.34	0	0				2.8	Member
10	78	SOL - 1" SOLID	0.57	1.2D + 1.0Di + 1.0Wi No	50	35.34	0	0				1.6	Member
11	88	SOL - 1" SOLID	8.83	1.2D + 1.6W Normal Wi	50	35.34	0	0				25.0	Member
12	98	SOL - 1" SOLID	0.50	1.2D + 1.0Di + 1.0Wi No	50	35.34	0	0				1.4	Member
13	108	SOL - 1" SOLID	0.84	1.2D + 1.6W Normal Wi	50	35.34	0	0				2.4	Member

Force/Stress Tension Summary

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 26	

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HORIZONTAL MEMBERS

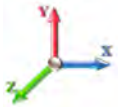
Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
14	118	SOL - 1" SOLID	0.48	1.2D + 1.6W Normal Wi	50	35.34	0	0				1.4	Member
15	128	SOL - 1" SOLID	0.74	1.2D + 1.0Di + 1.0Wi Nc	50	35.34	0	0				2.1	Member
16	138	SOL - 1" SOLID	0.36	1.2D + 1.0Di + 1.0Wi Nc	50	35.34	0	0				1.0	Member
17	148	SOL - 1 1/4" SOLID	10.12	1.2D + 1.6W Normal Wi	50	55.22	0	0				18.3	Member
18	158	SOL - 1 1/4" SOLID	0.43	1.2D + 1.0Di + 1.0Wi Nc	50	55.22	0	0				0.8	Member
19	168	SOL - 1" SOLID	0.53	1.2D + 1.0Di + 1.0Wi Nc	50	35.34	0	0				1.5	Member
20	178	SOL - 1" SOLID	0.30	1.2D + 1.0Di + 1.0Wi Nc	50	35.34	0	0				0.8	Member
21	188	SOL - 1" SOLID	0.50	1.2D + 1.0Di + 1.0Wi 90	50	35.34	0	0				1.4	Member
22	198	SOL - 1" SOLID	0.29	1.2D + 1.0Di + 1.0Wi Nc	50	35.34	0	0				0.8	Member
23	208	SOL - 1" SOLID	0.46	1.2D + 1.0Di + 1.0Wi 90	50	35.34	0	0				1.3	Member
24	218	SOL - 1" SOLID	0.24	1.2D + 1.0Di + 1.0Wi 90	50	35.34	0	0				0.7	Member
25	228	SOL - 1" SOLID	7.19	1.2D + 1.0Di + 1.0Wi Nc	50	35.34	0	0				20.3	Member
26	238	SOL - 1" SOLID	0.18	1.2D + 1.0Di + 1.0Wi 90	50	35.34	0	0				0.5	Member
27	248	SOL - 1" SOLID	0.24	1.2D + 1.0Di + 1.0Wi Nc	50	35.34	0	0				0.7	Member
28	258	SOL - 1" SOLID	0.16	1.2D + 1.0Di + 1.0Wi 90	50	35.34	0	0				0.5	Member
29	268	SOL - 1" SOLID	0.20	1.2D + 1.0Di + 1.0Wi Nc	50	35.34	0	0				0.6	Member
30	278	SOL - 1" SOLID	0.11	1.2D + 1.0Di + 1.0Wi 90	50	35.34	0	0				0.3	Member
31	288	SOL - 1" SOLID	0.19	1.2D + 1.0Di + 1.0Wi Nc	50	35.34	0	0				0.5	Member
32	298	SOL - 1" SOLID	5.73	1.2D + 1.0Di + 1.0Wi Nc	50	35.34	0	0				16.2	Member
33	308	SOL - 1 1/4" SOLID			50	0.00	0	0					
34	309	PLT - 6"X1"	1.31	0.9D + 1.6W 60° Wind	50	270.00	0	0				0.5	Member

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	5	SOL - 1 1/4" SOLID	0.00		50	0.00	0	0					
2	7.5	SOL - 1 1/4" SOLID	5.15	1.2D + 1.6W 90° Wind	50	55.22	0	0				9.3	Member
3	10	SOL - 1 1/4" SOLID	4.96	1.2D + 1.6W 90° Wind	50	55.22	0	0				9.0	Member
4	18	SOL - 1" SOLID	3.27	1.2D + 1.6W 90° Wind	50	35.34	0	0				9.2	Member
5	28	SOL - 7/8" SOLID	3.09	1.2D + 1.6W 90° Wind	50	27.06	0	0				11.4	Member
6	38	SOL - 7/8" SOLID	2.28	1.2D + 1.6W 90° Wind	50	27.06	0	0				8.4	Member
7	48	SOL - 7/8" SOLID	1.44	1.2D + 1.6W 90° Wind	50	27.06	0	0				5.3	Member
8	58	SOL - 7/8" SOLID	0.58	0.9D + 1.6W Normal Wi	50	27.06	0	0				2.2	Member
9	68	SOL - 7/8" SOLID	1.08	1.2D + 1.6W 60° Wind	50	27.06	0	0				4.0	Member
10	78	SOL - 7/8" SOLID	1.93	1.2D + 1.6W 60° Wind	50	27.06	0	0				7.1	Member
11	88	SOL - 7/8" SOLID	3.46	1.2D + 1.6W 60° Wind	50	27.06	0	0				12.8	Member
12	98	SOL - 7/8" SOLID	4.39	1.2D + 1.6W 90° Wind	50	27.06	0	0				16.2	Member
13	108	SOL - 7/8" SOLID	2.66	0.9D + 1.6W 90° Wind	50	27.06	0	0				9.8	Member
14	118	SOL - 7/8" SOLID	1.38	1.2D + 1.6W Normal Wi	50	27.06	0	0				5.1	Member
15	128	SOL - 7/8" SOLID	2.17	1.2D + 1.6W 90° Wind	50	27.06	0	0				8.0	Member
16	138	SOL - 7/8" SOLID	3.81	1.2D + 1.6W 90° Wind	50	27.06	0	0				14.1	Member
17	148	SOL - 1" SOLID	5.12	1.2D + 1.6W 90° Wind	50	35.34	0	0				14.5	Member
18	158	SOL - 1" SOLID	3.65	0.9D + 1.6W 60° Wind	50	35.34	0	0				10.3	Member
19	168	SOL - 7/8" SOLID	2.44	0.9D + 1.6W 60° Wind	50	27.06	0	0				9.0	Member
20	178	SOL - 7/8" SOLID	0.73	1.2D + 1.6W 60° Wind	50	27.06	0	0				2.7	Member
21	188	SOL - 7/8" SOLID	0.74	1.2D + 1.6W 90° Wind	50	27.06	0	0				2.7	Member
22	198	SOL - 7/8" SOLID	1.42	1.2D + 1.6W Normal Wi	50	27.06	0	0				5.2	Member
23	208	SOL - 7/8" SOLID	1.87	1.2D + 1.6W 90° Wind	50	27.06	0	0				6.9	Member
24	218	SOL - 7/8" SOLID	2.12	1.2D + 1.6W 90° Wind	50	27.06	0	0				7.8	Member
25	228	SOL - 7/8" SOLID	3.28	1.2D + 1.6W 90° Wind	50	27.06	0	0				12.1	Member
26	238	SOL - 7/8" SOLID	3.03	0.9D + 1.6W 60° Wind	50	27.06	0	0				11.2	Member

Force/Stress Tension Summary

Structure:	CT15879-A-SBA	**Code:**	EIA/TIA-222-G	10/26/2021	
Site Name:	West Hartford	**Exposure:**	C		
Height:	309.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 27	



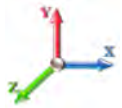
Tower Engineering Solutions

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
27	248	SOL - 7/8" SOLID	1.35	0.9D + 1.6W 90° Wind	50	27.06	0	0				5.0	Member
28	258	SOL - 7/8" SOLID	1.14	1.2D + 1.6W Normal Wi	50	27.06	0	0				4.2	Member
29	268	SOL - 7/8" SOLID	0.24	0.9D + 1.6W 90° Wind	50	27.06	0	0				0.9	Member
30	278	SOL - 7/8" SOLID	0.50	0.9D + 1.6W Normal Wi	50	27.06	0	0				1.8	Member
31	288	SOL - 7/8" SOLID	0.77	0.9D + 1.6W Normal Wi	50	27.06	0	0				2.8	Member
32	298	SOL - 7/8" SOLID	1.50	0.9D + 1.6W 60° Wind	50	27.06	0	0				5.6	Member
33	308	SOL - 7/8" SOLID	6.31	0.9D + 1.6W 90° Wind	50	27.06	0	0				23.3	Member
34	309	-	0.00		50	0.00	0	0					

Support Forces Summary

Structure:	CT15879-A-SBA		**Code:**	EIA/TIA-222-G	10/26/2021
Site Name:	West Hartford		**Exposure:**	C	
Height:	309.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 28



Tower Engineering Solutions

Load Case	Node	FX (kips)	FY (kips)	FZ (kips)
1.2D + 1.6W Normal Wind	1	-0.04	173.17	-8.86
	A1	0.00	-2.89	2.44
	A1b	57.98	-39.28	-35.68
	A1a	-58.13	-56.79	-35.81
1.2D + 1.6W 60° Wind	1	-7.31	163.89	-4.12
	A1	-1.68	-12.48	14.27
	A1b	11.75	-10.30	-8.67
	A1a	-70.45	-67.68	-40.69
1.2D + 1.6W 90° Wind	1	-8.73	176.41	0.41
	A1	-2.27	-31.62	42.08
	A1b	3.73	-3.83	-2.97
	A1a	-70.77	-66.97	-39.63
0.9D + 1.6W Normal Wind	1	-0.06	156.27	-9.22
	A1	0.00	-2.90	2.45
	A1b	57.85	-39.23	-35.60
	A1a	-57.98	-56.69	-35.72
0.9D + 1.6W 60° Wind	1	-7.43	147.17	-4.19
	A1	-1.68	-12.53	14.32
	A1b	11.80	-10.33	-8.69
	A1a	-70.37	-67.65	-40.65
0.9D + 1.6W 90° Wind	1	-8.92	159.52	0.45
	A1	-2.26	-31.58	41.97
	A1b	3.75	-3.85	-2.98
	A1a	-70.60	-66.87	-39.54
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.17	378.90	-2.07
	A1	-0.02	-17.57	28.87
	A1b	53.14	-33.16	-32.76
	A1a	-53.49	-48.73	-33.01
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-1.58	379.67	-0.97
	A1	-1.80	-24.83	38.19
	A1b	32.31	-19.26	-20.66
	A1a	-62.76	-56.98	-36.22
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-1.84	382.26	0.04
	A1	-2.27	-33.51	50.27
	A1b	26.41	-14.68	-16.14
	A1a	-61.22	-54.86	-34.27
1.0D + 1.0W Normal Wind	1	-0.04	110.42	-2.28
	A1	0.00	-8.89	11.30
	A1b	23.20	-16.02	-13.85
	A1a	-23.13	-22.84	-13.82
1.0D + 1.0W 60° Wind	1	-1.89	111.17	-1.07
	A1	-0.40	-12.14	15.65
	A1b	13.41	-9.77	-8.19
	A1a	-27.44	-26.77	-15.84

(-) = Uplift (+) = Down

1.0D + 1.0W 90° Wind	1	-2.24	111.59	0.07
	A1	-0.50	-15.88	21.00
	A1b	10.26	-7.53	-6.12
	A1a	-26.32	-25.55	-14.97

Max Reactions (kips)	Base	Anchor 1
Vertical	382.26	67.68
Horizontal	9.22	81.36

Cable Forces Summary

Structure:	CT15879-A-SBA		**Code:**	EIA/TIA-222-G	10/26/2021
Site Name:	West Hartford		**Exposure:**	C	
Height:	309.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 30

Load Case	Elevation (ft)	Cable	Node 1	Node 2	Allow Tension (kips)	Applied Tension (kips)	Use %
1.2D + 1.6W Normal Wind	88.00	3/4 EHS	A1	37	34.98	0.75	2
			A1b	37a	34.98	19.99	57
			A1a	37b	34.98	22.15	63
	148.00	13/16	A1	61	43.20	0.17	0
			A1b	61a	43.20	24.04	56
			A1a	61b	43.20	26.71	62
	228.00	7/8 EHS	A1	93	47.82	0.96	2
			A1b	93a	47.82	20.89	44
			A1a	93b	47.82	23.92	50
	298.00	13/16	A1	121	43.20	3.04	7
			A1b	121a	43.20	16.07	37
			A1a	121b	43.20	18.25	42
1.2D + 1.6W 60° Wind	88.00	3/4 EHS	A1	37	34.98	3.10	9
			A1b	37a	34.98	3.05	9
			A1a	37b	34.98	26.33	75
	148.00	13/16	A1	61	43.20	4.04	9
			A1b	61a	43.20	3.69	9
			A1a	61b	43.20	31.32	73
	228.00	7/8 EHS	A1	93	47.82	6.02	13
			A1b	93a	47.82	5.54	12
			A1a	93b	47.82	28.56	60
	298.00	13/16	A1	121	43.20	7.22	17
			A1b	121a	43.20	6.84	16
			A1a	121b	43.20	22.02	51
1.2D + 1.6W 90° Wind	88.00	3/4 EHS	A1	37	34.98	12.46	36
			A1b	37a	34.98	0.99	3
			A1a	37b	34.98	26.73	76
	148.00	13/16	A1	61	43.20	15.36	36
			A1b	61a	43.20	0.97	2
			A1a	61b	43.20	31.79	74
	228.00	7/8 EHS	A1	93	47.82	14.48	30
			A1b	93a	47.82	1.85	4
			A1a	93b	47.82	28.13	59
	298.00	13/16	A1	121	43.20	12.24	28
			A1b	121a	43.20	3.33	8
			A1a	121b	43.20	20.92	48
0.9D + 1.6W Normal Wind	88.00	3/4 EHS	A1	37	34.98	0.76	2
			A1b	37a	34.98	19.89	57
			A1a	37b	34.98	22.04	63
	148.00	13/16	A1	61	43.20	0.17	0
			A1b	61a	43.20	23.97	55
			A1a	61b	43.20	26.62	62
	228.00	7/8 EHS	A1	93	47.82	0.96	2
			A1b	93a	47.82	20.88	44
			A1a	93b	47.82	23.90	50
	298.00	13/16	A1	121	43.20	3.05	7
			A1b	121a	43.20	16.09	37
			A1a	121b	43.20	18.27	42
0.9D + 1.6W 60° Wind	88.00	3/4 EHS	A1	37	34.98	3.11	9
			A1b	37a	34.98	3.06	9
			A1a	37b	34.98	26.25	75
	148.00	13/16	A1	61	43.20	4.05	9
			A1b	61a	43.20	3.70	9

0.9D + 1.6W 60° Wind	148.00	13/16	A1a	61b	43.20	31.27	72
	228.00	7/8 EHS	A1	93	47.82	6.04	13
			A1b	93a	47.82	5.56	12
			A1a	93b	47.82	28.57	60
	298.00	13/16	A1	121	43.20	7.25	17
			A1b	121a	43.20	6.86	16
			A1a	121b	43.20	22.05	51
0.9D + 1.6W 90° Wind	88.00	3/4 EHS	A1	37	34.98	12.38	35
			A1b	37a	34.98	0.99	3
			A1a	37b	34.98	26.60	76
	148.00	13/16	A1	61	43.20	15.30	35
			A1b	61a	43.20	0.98	2
			A1a	61b	43.20	31.70	73
	228.00	7/8 EHS	A1	93	47.82	14.48	30
			A1b	93a	47.82	1.86	4
			A1a	93b	47.82	28.11	59
	298.00	13/16	A1	121	43.20	12.26	28
			A1b	121a	43.20	3.35	8
			A1a	121b	43.20	20.95	48
1.2D + 1.0Di + 1.0Wi Normal Wind	88.00	3/4 EHS	A1	37	34.98	9.61	27
			A1b	37a	34.98	17.01	49
			A1a	37b	34.98	19.01	54
	148.00	13/16	A1	61	43.20	10.19	24
			A1b	61a	43.20	19.83	46
			A1a	61b	43.20	22.70	53
	228.00	7/8 EHS	A1	93	47.82	11.71	24
			A1b	93a	47.82	21.53	45
			A1a	93b	47.82	24.83	52
	298.00	13/16	A1	121	43.20	11.03	26
			A1b	121a	43.20	20.38	47
			A1a	121b	43.20	23.12	54
1.2D + 1.0Di + 1.0Wi 60° Wind	88.00	3/4 EHS	A1	37	34.98	11.83	34
			A1b	37a	34.98	11.10	32
			A1a	37b	34.98	21.41	61
	148.00	13/16	A1	61	43.20	13.08	30
			A1b	61a	43.20	11.99	28
			A1a	61b	43.20	25.99	60
	228.00	7/8 EHS	A1	93	47.82	14.95	31
			A1b	93a	47.82	13.76	29
			A1a	93b	47.82	28.59	60
	298.00	13/16	A1	121	43.20	14.64	34
			A1b	121a	43.20	13.66	32
			A1a	121b	43.20	26.44	61
1.2D + 1.0Di + 1.0Wi 90° Wind	88.00	3/4 EHS	A1	37	34.98	14.97	43
			A1b	37a	34.98	9.35	27
			A1a	37b	34.98	20.89	60
	148.00	13/16	A1	61	43.20	17.20	40
			A1b	61a	43.20	9.81	23
			A1a	61b	43.20	25.25	58
	228.00	7/8 EHS	A1	93	47.82	19.07	40
			A1b	93a	47.82	11.38	24
			A1a	93b	47.82	27.62	58
	298.00	13/16	A1	121	43.20	18.31	42
			A1b	121a	43.20	11.14	26
			A1a	121b	43.20	25.51	59
1.0D + 1.0W Normal Wind	88.00	3/4 EHS	A1	37	34.98	3.03	9
			A1b	37a	34.98	7.44	21
			A1a	37b	34.98	8.18	23
	148.00	13/16	A1	61	43.20	3.14	7
			A1b	61a	43.20	8.78	20
			A1a	61b	43.20	9.88	23
	228.00	7/8 EHS	A1	93	47.82	4.75	10
			A1b	93a	47.82	8.87	19
			A1a	93b	47.82	10.09	21
	298.00	13/16	A1	121	43.20	4.73	11

1.0D + 1.0W Normal Wind	298.00	13/16	A1b	121a	43.20	7.79	18
			A1a	121b	43.20	8.76	20
1.0D + 1.0W 60° Wind	88.00	3/4 EHS	A1	37	34.98	4.21	12
			A1b	37a	34.98	4.02	11
			A1a	37b	34.98	9.74	28
	148.00	13/16	A1	61	43.20	4.92	11
			A1b	61a	43.20	4.50	10
			A1a	61b	43.20	11.75	27
	228.00	7/8 EHS	A1	93	47.82	6.14	13
			A1b	93a	47.82	5.72	12
			A1a	93b	47.82	11.67	24
	298.00	13/16	A1	121	43.20	5.89	14
			A1b	121a	43.20	5.51	13
			A1a	121b	43.20	9.98	23
1.0D + 1.0W 90° Wind	88.00	3/4 EHS	A1	37	34.98	5.92	17
			A1b	37a	34.98	3.03	9
			A1a	37b	34.98	9.31	27
	148.00	13/16	A1	61	43.20	7.06	16
			A1b	61a	43.20	3.07	7
			A1a	61b	43.20	11.21	26
	228.00	7/8 EHS	A1	93	47.82	7.75	16
			A1b	93a	47.82	4.61	10
			A1a	93b	47.82	11.17	23
	298.00	13/16	A1	121	43.20	7.04	16
			A1b	121a	43.20	4.58	11
			A1a	121b	43.20	9.57	22

Max Reactions

Base:	382.26 (Vertical)	9.22 (Horizontal)
Anchor 1:	67.68 (Vertical)	81.36 (Horizontal)

Max Usages

Max Leg: 51.6% (1.2D + 1.0Di + 1.0Wi 60° Wind - Sect 7)
Max Diag: 57.3% (1.2D + 1.6W 90° Wind - Sect 33)
Max Horiz: 25.0% (1.2D + 1.6W Normal Wind - Sect 11)
Max Cable: 76.4% (1.2D + 1.6W 90° Wind) - Elev: 88 ft

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.6W 97 mph Wind at 60° From Face	20.50	0.3056	0.7278	0.7534
	100.50	1.0094	1.2016	0.3235
	113.00	1.0703	1.2762	0.2302
	130.50	1.1206	1.3809	0.1128
	135.50	1.1288	1.4109	0.0844
	145.50	1.1414	1.4710	0.0671
	160.50	1.1681	1.5491	0.1026
	165.50	1.1757	1.5792	0.0831
	180.50	1.1922	1.6691	0.0481
	195.50	1.1979	1.7595	0.0188
	203.00	1.1957	1.7226	0.0480
	220.50	1.1852	1.6372	0.0476
	225.50	1.1816	1.6128	0.0558
	233.00	1.1816	1.5764	0.0330
	235.50	1.1826	1.5642	0.0196
	243.00	1.1854	1.4692	0.0332
	250.50	1.1890	1.3741	0.0380
	253.00	1.1900	1.3423	0.0719
	265.50	1.1957	1.1821	0.0340
	308.00	1.2287	0.6880	0.2200
	309.00	1.2333	0.6888	0.2802
	326.50	1.4417	0.6837	1.0987
	344.00	1.8122	0.6837	1.2713

0.9D + 1.6W 97 mph Wind at 90° From Face	20.50	0.4084	0.9509	0.9980
	100.50	1.3838	1.4414	0.4401
	113.00	1.4670	1.5184	0.3176
	130.50	1.5378	1.6265	0.1602
	135.50	1.5497	1.6575	0.1200
	145.50	1.5667	1.7194	0.0776
	160.50	1.5924	1.8006	0.0913
	165.50	1.5977	1.8318	0.0623
	180.50	1.6021	1.9256	0.0579
	195.50	1.5883	2.0196	0.1073
	203.00	1.5738	1.9845	0.1509
	220.50	1.5297	1.9017	0.1723
	225.50	1.5155	1.8781	0.1808
	233.00	1.4987	1.8428	0.1407
	235.50	1.4940	1.8310	0.1312
	243.00	1.4791	1.7370	0.1407
	250.50	1.4644	1.6430	0.1499
	253.00	1.4591	1.6113	0.1931
	265.50	1.4328	1.4483	0.1550
	308.00	1.3550	0.9431	0.1429
	309.00	1.3570	0.9438	0.1831
	326.50	1.5027	0.9400	0.9633
	344.00	1.8296	0.9403	1.1345
0.9D + 1.6W 97 mph Wind at Normal To Face	20.50	0.3746	0.1881	1.0126
	100.50	1.3544	0.6480	0.4241
	113.00	1.4336	0.7203	0.2977
	130.50	1.4977	0.8217	0.1387
	135.50	1.5075	0.8507	0.1011
	145.50	1.5207	0.9089	0.0658
	160.50	1.5403	0.9840	0.0596
	165.50	1.5437	1.0129	0.0420
	180.50	1.5422	1.0997	0.0472
	195.50	1.5230	1.1867	0.1088
	203.00	1.5076	1.1482	0.1176
	220.50	1.4613	1.0583	0.1679
	225.50	1.4470	1.0327	0.1712
	233.00	1.4299	0.9943	0.1174
	235.50	1.4220	0.9815	0.1195
	243.00	1.4103	0.8845	0.1153
	250.50	1.3960	0.7875	0.1069
	253.00	1.3916	0.7552	0.0612
	265.50	1.3665	0.5937	0.1224
	308.00	1.2898	0.1028	0.0714
	309.00	1.2918	0.1032	0.1332
	326.50	1.4779	0.0989	0.9488
	344.00	1.8005	0.0989	1.1211

1.0D + 1.0W 60 mph Wind at 60° From Face	20.50	0.0715	0.2559	0.1631
	100.50	0.2164	0.3154	0.0609
	113.00	0.2274	0.3282	0.0390
	130.50	0.2348	0.3481	0.0123
	135.50	0.2355	0.3542	0.0062
	145.50	0.2361	0.3671	0.0037
	160.50	0.2394	0.3850	0.0132
	165.50	0.2403	0.3923	0.0085
	180.50	0.2417	0.4159	0.0025
	195.50	0.2409	0.4415	0.0091
	203.00	0.2394	0.4355	0.0161
	220.50	0.2348	0.4233	0.0191
	225.50	0.2332	0.4203	0.0223
	233.00	0.2323	0.4161	0.0078
	235.50	0.2322	0.4149	0.0043
	243.00	0.2319	0.3972	0.0013
	250.50	0.2318	0.3799	0.0025
	253.00	0.2317	0.3743	0.0154
	265.50	0.2316	0.3464	0.0013
	308.00	0.2353	0.2638	0.0565
	309.00	0.2365	0.2641	0.0771
	326.50	0.2913	0.2634	0.3106
	344.00	0.3962	0.2634	0.3600
1.0D + 1.0W 60 mph Wind at 90° From Face	20.50	0.0824	0.4100	0.1686
	100.50	0.2301	0.4855	0.0574
	113.00	0.2401	0.4998	0.0344
	130.50	0.2455	0.5213	0.0112
	135.50	0.2455	0.5278	0.0109
	145.50	0.2447	0.5412	0.0154
	160.50	0.2455	0.5594	0.0121
	165.50	0.2456	0.5667	0.0128
	180.50	0.2443	0.5898	0.0176
	195.50	0.2406	0.6144	0.0259
	203.00	0.2374	0.6076	0.0346
	220.50	0.2287	0.5930	0.0354
	225.50	0.2261	0.5892	0.0374
	233.00	0.2233	0.5837	0.0257
	235.50	0.2226	0.5820	0.0223
	243.00	0.2205	0.5628	0.0231
	250.50	0.2185	0.5440	0.0240
	253.00	0.2178	0.5377	0.0358
	265.50	0.2144	0.5068	0.0236
	308.00	0.2076	0.4129	0.0419
	309.00	0.2086	0.4130	0.0616
	326.50	0.2489	0.4124	0.2930
	344.00	0.3475	0.4124	0.3423

1.0D + 1.0W 60 mph Wind at Normal To Face	20.50	0.0596	0.0078	0.1607
	100.50	0.1953	0.0183	0.0462
	113.00	0.2028	0.0238	0.0230
	130.50	0.2043	0.0342	0.0155
	135.50	0.2032	0.0378	0.0205
	145.50	0.2002	0.0461	0.0261
	160.50	0.1973	0.0581	0.0161
	165.50	0.1960	0.0637	0.0182
	180.50	0.1908	0.0834	0.0286
	195.50	0.1830	0.1081	0.0379
	203.00	0.1783	0.1028	0.0369
	220.50	0.1658	0.0954	0.0461
	225.50	0.1623	0.0946	0.0467
	233.00	0.1578	0.0945	0.0334
	235.50	0.1565	0.0947	0.0331
	243.00	0.1529	0.0822	0.0296
	250.50	0.1494	0.0708	0.0267
	253.00	0.1484	0.0672	0.0153
	265.50	0.1426	0.0510	0.0290
	308.00	0.1271	0.0137	0.0289
	309.00	0.1277	0.0139	0.0486
	326.50	0.1821	0.0134	0.2824
	344.00	0.2760	0.0134	0.3316
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	20.50	0.1494	0.1887	0.3879
	100.50	0.5317	0.3143	0.1912
	113.00	0.5695	0.3350	0.1559
	130.50	0.6101	0.3644	0.1149
	135.50	0.6196	0.3730	0.1064
	145.50	0.6372	0.3902	0.1012
	160.50	0.6681	0.4139	0.1222
	165.50	0.6784	0.4231	0.1146
	180.50	0.7069	0.4510	0.1018
	195.50	0.7307	0.4795	0.0823
	203.00	0.7405	0.4785	0.0656
	220.50	0.7604	0.4759	0.0655
	225.50	0.7655	0.4753	0.0682
	233.00	0.7761	0.4745	0.0991
	235.50	0.7802	0.4743	0.0885
	243.00	0.7921	0.4456	0.0940
	250.50	0.8043	0.4169	0.0914
	253.00	0.8082	0.4072	0.0813
	265.50	0.8272	0.3566	0.0860
	308.00	0.8901	0.2027	0.1557
	309.00	0.8931	0.2030	0.1837
	326.50	0.9978	0.2016	0.4984
	344.00	1.1635	0.2016	0.5658

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	20.50	0.1767	0.4031	0.4314
	100.50	0.6033	0.5308	0.2065
	113.00	0.6439	0.5515	0.1654
	130.50	0.6857	0.5811	0.1150
	135.50	0.6950	0.5896	0.1037
	145.50	0.7116	0.6068	0.0936
	160.50	0.7391	0.6304	0.1088
	165.50	0.7478	0.6395	0.0978
	180.50	0.7700	0.6673	0.0827
	195.50	0.7855	0.6955	0.0635
	203.00	0.7904	0.6944	0.0491
	220.50	0.7972	0.6915	0.0594
	225.50	0.7983	0.6908	0.0649
	233.00	0.8025	0.6899	0.0783
	235.50	0.8044	0.6896	0.0619
	243.00	0.8096	0.6607	0.0699
	250.50	0.8148	0.6318	0.0669
	253.00	0.8162	0.6221	0.0610
	265.50	0.8232	0.5718	0.0671
	308.00	0.8450	0.4176	0.1137
	309.00	0.8470	0.4178	0.1382
	326.50	0.9228	0.4170	0.4400
	344.00	1.0707	0.4171	0.5065
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	20.50	0.1502	0.0581	0.4071
	100.50	0.5416	0.1551	0.1777
	113.00	0.5755	0.1725	0.1338
	130.50	0.6069	0.1980	0.0828
	135.50	0.6131	0.2056	0.0719
	145.50	0.6235	0.2212	0.0615
	160.50	0.6403	0.2428	0.0658
	165.50	0.6452	0.2514	0.0602
	180.50	0.6553	0.2781	0.0375
	195.50	0.6580	0.3063	0.0327
	203.00	0.6568	0.3054	0.0306
	220.50	0.6483	0.3043	0.0554
	225.50	0.6453	0.3042	0.0610
	233.00	0.6424	0.3044	0.0400
	235.50	0.6401	0.3045	0.0353
	243.00	0.6401	0.2769	0.0335
	250.50	0.6380	0.2496	0.0307
	253.00	0.6375	0.2405	0.0260
	265.50	0.6320	0.1946	0.0453
	308.00	0.6087	0.0574	0.0352
	309.00	0.6096	0.0577	0.0611
	326.50	0.6807	0.0564	0.3728
	344.00	0.8042	0.0564	0.4397

1.2D + 1.6W 97 mph Wind at 60° From Face	20.50	0.3073	0.7277	0.7582
	100.50	1.0144	1.2016	0.3240
	113.00	1.0753	1.2762	0.2301
	130.50	1.1254	1.3809	0.1122
	135.50	1.1336	1.4109	0.0835
	145.50	1.1461	1.4710	0.0663
	160.50	1.1725	1.5492	0.1020
	165.50	1.1801	1.5792	0.0825
	180.50	1.1964	1.6693	0.0477
	195.50	1.2019	1.7596	0.0194
	203.00	1.1996	1.7228	0.0489
	220.50	1.1888	1.6374	0.0485
	225.50	1.1852	1.6130	0.0566
	233.00	1.1850	1.5766	0.0327
	235.50	1.1860	1.5645	0.0193
	243.00	1.1888	1.4694	0.0330
	250.50	1.1924	1.3744	0.0380
	253.00	1.1934	1.3426	0.0724
	265.50	1.1989	1.1824	0.0339
	308.00	1.2316	0.6885	0.2199
	309.00	1.2362	0.6893	0.2805
	326.50	1.4447	0.6842	1.0995
	344.00	1.8156	0.6842	1.2724
1.2D + 1.6W 97 mph Wind at 90° From Face	20.50	0.4119	0.9490	1.0077
	100.50	1.3953	1.4399	0.4422
	113.00	1.4788	1.5170	0.3186
	130.50	1.5497	1.6253	0.1599
	135.50	1.5615	1.6562	0.1193
	145.50	1.5784	1.7182	0.0766
	160.50	1.6038	1.7995	0.0902
	165.50	1.6090	1.8307	0.0613
	180.50	1.6128	1.9246	0.0591
	195.50	1.5985	2.0187	0.1096
	203.00	1.5837	1.9837	0.1535
	220.50	1.5387	1.9009	0.1752
	225.50	1.5242	1.8774	0.1836
	233.00	1.5071	1.8421	0.1435
	235.50	1.5023	1.8303	0.1340
	243.00	1.4871	1.7363	0.1435
	250.50	1.4720	1.6424	0.1527
	253.00	1.4665	1.6107	0.1959
	265.50	1.4396	1.4477	0.1577
	308.00	1.3599	0.9423	0.1430
	309.00	1.3619	0.9430	0.1828
	326.50	1.5071	0.9393	0.9621
	344.00	1.8336	0.9396	1.1336

1.2D + 1.6W 97 mph Wind at Normal To Face	20.50	0.3779	0.1882	1.0217
	100.50	1.3653	0.6480	0.4261
	113.00	1.4449	0.7203	0.2987
	130.50	1.5090	0.8217	0.1385
	135.50	1.5188	0.8507	0.1007
	145.50	1.5319	0.9089	0.0651
	160.50	1.5513	0.9840	0.0586
	165.50	1.5545	1.0129	0.0409
	180.50	1.5527	1.0996	0.0485
	195.50	1.5331	1.1867	0.1105
	203.00	1.5174	1.1481	0.1194
	220.50	1.4706	1.0583	0.1698
	225.50	1.4561	1.0327	0.1732
	233.00	1.4387	0.9943	0.1193
	235.50	1.4307	0.9815	0.1214
	243.00	1.4188	0.8845	0.1172
	250.50	1.4042	0.7875	0.1087
	253.00	1.3997	0.7552	0.0629
	265.50	1.3742	0.5937	0.1243
	308.00	1.2961	0.1029	0.0698
	309.00	1.2980	0.1033	0.1317
	326.50	1.4838	0.0990	0.9479
	344.00	1.8062	0.0990	1.1205

Guyed Tower Base Design

Tower Engineering Solutions

			Date: 10/26/2021
Customer Name:	SBA Communications Corp	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	309
Site Nmber:	CT15879-A-SBA	**Engineer Name:**	J. Tibbetts
Engr. Number:	117989	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Guyed Tower

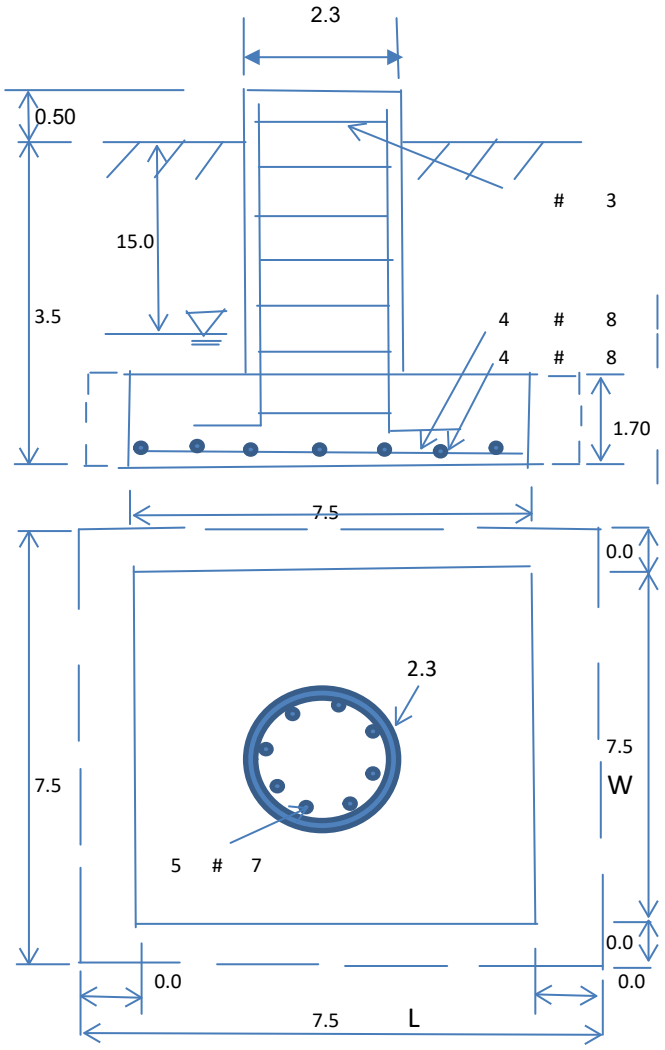
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	382.3	Shear Force (Kips):	9.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	2.3	Depth of Base BG (ft.):	3.5
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	1.70
Length of Pad (ft.):	7.5	Width of Pad (ft.):	7.5
Final Length of pad (ft)	7.5	Final width of pad (ft):	7.5



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	7	Tie / Stirrup Size #:	3	
Qty. of Vertical Rebars:	5	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	4	Qty. of Rebar in Pad (W):	4

Soil Design Parameters:

Soil Unit Weight (pcf):	115.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	15.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	50000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	30
					Angle from Bottm of Pad:	25

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.6

Total Dry Soil Volume (cu. Ft.):	93.77	Total Dry Soil Weight (Kips):	10.78
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	10.78	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	105.18	Total Dry Concrete Weight (Kips):	15.78
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	15.78	Total Vertical Load on Base (Kips):	408.82

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	7356.1	<	Allowable Factored Soil Bearing (psf):	30000	0.25	OK!
Calculated Foundation Allowable Axail Capacity (Kips):	1687.5	>	Design Factored Axial Load (Kips):	387	0.23	OK!

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00		
				Load/ Capacity Ratio	
(1) Concrete Pier:					
Vertical Steel Rebar Area (sq. in./each):	0.60	Tie / Stirrup Area (sq. in./each):	0.11		
Calculated Moment Capacity (Mn,Kips-Ft):	89.5	> Design Factored Moment (Mu, Kips-Ft	21.2	0.24	OK!
Calculated Shear Capacity (Kips):	73.4	> Design Factored Shear (Kips):	9.2	0.13	OK!
Calculated Tension Capacity (Tn, Kips):	162.0	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	789.3	> Design Factored Axial Load (Pu Kips):	382.3	0.48	OK!
Moment & Axial Strength Combination(Pu/Pn+Mu/Mn):	0.72	OK!			
Pier Reinforcement Ratio:	0.005				
(2).Concrete Pad:					
One-Way Design Shear Capacity (L-Dir. Kips);	125.0	> One-Way Factored Shear (L-Dir Kips):	61.4	0.49	OK!
One-Way Design Shear Capacity (W-Dir. Kips):	125.0	> One-Way Factored Shear (W-Dir Kips)	61.4	0.49	OK!
Two-Way Design Shear Capacity (Kips):	388.2	> Two-Way Factored Shear (Kips):	309.8	0.80	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0021	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0021		OK!
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	234.4	> Moment at Bottom (L-Direct. K-Ft):	174.0	0.74	OK!
Lower Steel Pad Moment Capacity (W-Dir. Kips-ft):	234.4	> Moment at Bottom (W-Dir. Kips-Ft):	174.0	0.74	OK!

Last revised on 5/4/2020

Guy Anchor Analysis and Design

			Date: 10/26/2021
Customer Name:	SBA Communications Corp	**EIA/TIA Standard:**	EIA-222-G
Site Name:	0	**Structure Height (Ft.):**	309
Site Nmber:	CT15879-A-SBA	**Engineer Name:**	J. Tibbetts
Engr. Number:	117989	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations **Number of Anchors:** 1 Set Failure model: New

Soil Design Parameters:

Soil Unit Weight (pcf):	135.0	Soil Buoyant Weight:	65.0	Pcf	Cohesion of Soils (psf):		0
Water Table B.G.S. (ft):	15.0	Unit Weight of Water:	62.4	pcf	Internal Angle of Friction (°)		30
Ultimate lateral pressure (psf):	0	Ultimate Skin Friction:	0	Psf	Coefficient of Shear Friction:		0.30
Conical Failure Angle from Top:	30	Failure Angle from Bottm	30				

Material Properties:

Concrete Strength (psi):	3000	Unit Weight of Concrete:	150.0	psf	Horizontal Rebar Yield (psi):		60000
Shear Strength Reduction Factor:	0.75				Flexure Strength Reduction Factor:		0.9

A. Inner Anchors:

Radius (ft.): 262

1. Design Reactions (Factored):

Uplift (Kips:)	67.7	Shear (Kips)	81.4		Angle of force resultant (Ø):		39.8

2. Foundation Geometries:

Block Base Depth B.G.S. (ft):	10.0	Block with/without toe?	No		Water Table below grade (ft):		15.00
Length of Anchor Block (L, ft.):	20.5	Width of Anchor Block:	4.0	ft.	Thickness of Anchor Block (ft.):		3.8
Concrete Block @ top of Anchor?	No						

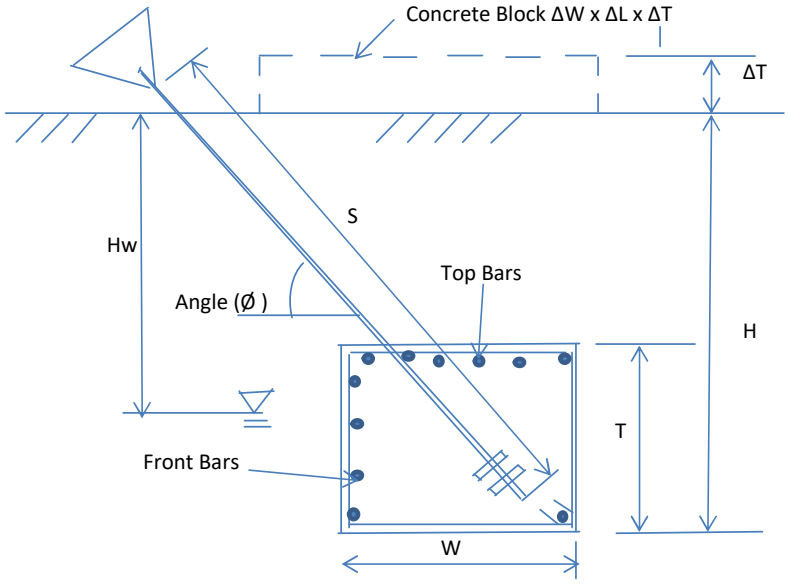
(1). Inner Anchors: *Radius (ft.):* 262

H (ft.):	10.0	*Hw(ft.):*	15.0
L (ft.):	20.5	*W (ft.):*	4.0
T (ft.):	3.8	*Angle (Ø):*	39.8
S (ft.):	16.42		

Top bars: 4 # 7

Front bars: 4 # 7

Concrete Volume (Cu. Yd.)/Each: 11.54



3. Foundation Analysis and Design:

Total Dry Soil Volume (cu. Ft.):	1135.33	Total Dry Soil Weight (Kips):	306.72
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	153.27	Weight of the Concrete Block at Top (Kips):	0.00
Total Dry Concrete Volume (cu. Ft.):	311.60	Total Dry Concrete Weight (Kip):	46.74
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	46.74	Weight Reduction Factor:	0.9
Uplift Strength Reduction Factor on Soil:	0.75	Shear Strength Reduction Factor:	0.75

4. Check Soil and Foundation Capacities:

Nominal Factored Uplift Resistance:	157.02	Kips >	Design Uplift Force (Kips):	67.7	OK!
Ultimate Shear Friction Resistance at base:	22.47	Kips	Ultimate Resistance Pressure:	3280.5	Psf
Factored Shear Resistance:	208.52	Kips >	Design Shear Force (Kips):	81.4	OK!

5. Design Concrete Block:

Rebar Size (#):	7	Wind Load Factor on Concrete Design:	1.00	
Qty. of the Rebar at top of the block:	4	Qty. of the Rebar in the front of the block:	4	
Area of Single Rebar (sq. in.):	0.60	Factor for concrete compression zone:	0.85	
One Way Shear due to Shear Force (Kips):	40.7	One Way Shear Capacity for shear (kips):	164.8	OK!
One Way Shear due to Uplift (Kips):	33.8	One Way Shear Capacity for uplift (kips):	164.1	OK!
Moment due to Shear Load (Kips-ft):	208.5	Flexural Capacity for Shear Load (Kips-ft):	475.0	OK!
Moment due to uplift Load (Kips-ft):	173.4	Flexural Capacity for uplift Load (Kips-ft):	449.1	OK!
Ratio of Design Moment/Moment capacity:	0.44	Minimum ratio of rebar (top & front) :	0.17	OK!
Max. Ratio of Shear Force/Shear capacity:	0.25	OK!		

0.0 0.0

EXHIBIT 9

Antenna Mount Analysis

October 20, 2021

Dave Evans
SBA Network Services, LLC.
134 Flanders Road, Suite 125
Westborough, MA 01581
(508) 251-0720x 3805

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject:	**Appurtenance Mount Analysis Report**	
Carrier Designation:	***Dish Wireless* Co-Locate**	
	Site Number:	BOBDL00129A
	Site Name:	N/A
SBA Network Services Designation:	**Site Number:**	CT15879-A
	Site Name:	West Hartford
	Application Number:	167827, v1
Engineering Firm Designation:	**B+T Group Project Number:**	149475.003.01
Site Data:	**3114 Albany Avenue, West Hartford, CT, 06117, Hartford County** **Latitude *41.79680°*, Longitude - *72.79683°*** **Guyed Tower** **(3) 8 ft. Sector Mount**	

Dear Mr. Evans,

B+T Group is pleased to submit this **"Appurtenance Mount Analysis Report"** to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** **(Passing at 72.7%)**

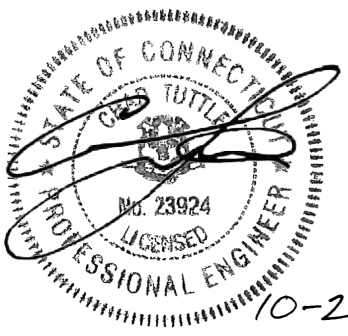
The analysis has been performed in accordance with the ANSI/TIA-222-G Standard. This analysis utilizes an ultimate 3-second gust wind speed of 116 mph (converted to an equivalent 90 mph nominal 3-second gust wind speed per Section 1609.3.1 for use with ANSI/TIA-222 G) as required by the 2015 International Building Code. Exposure Category C and Risk Category II were used in this analysis.

All the equipment proposed in this report shall be installed in accordance with the drawings for the determined available structural capacity to be effective.

We at *B+T Group* appreciate the opportunity of providing our continuing professional services to you and *SBA Network Services, LLC*. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Erik Perez

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2022



10-20-21

Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

The appurtenance mount consists of Commscope sector mounts, (Part# MTC3975083) at 100 ft., attached to guyed tower at 3114 Albany Avenue, West Hartford, CT, 06117, Hartford County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-G-2-2005 Structural Standard for Antenna Supporting Structures and Antennas - Addendum 2 using a 3-second gust wind speed of 90 mph with no ice and 50 mph with 1.5 inch escalated ice thickness. Exposure Category C & Topographic Category 1 and Risk Category II were used in this analysis. In addition, the sector mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 30 mph. The mount was analyzed under 30º increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed Equipment Information

Loading	RAD Center Elev. (ft.)	Position	Qty.	Description	Note
Proposed	100	1	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		-	1	Raycap RDIDC-9181-PF-48	3

Note:
(1) Proposed Antenna to be installed on the Mount Pipe.
(2) Proposed Equipment to be installed directly behind the Antenna.
(3) Proposed Equipment to be installed on the mount.

Table 2 – Documents Provided

Documents	Remarks	Reference	Source
SBA Application	Proposed Loading Mount Info	Date: 08/02/2021	SBA Network Services, LLC
RFDS	Proposed Loading	Date: 07/23/2021	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

Manufacturers drawing were used to create the model.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.

5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
6. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The following material grades were assumed (Unless Noted Otherwise):
   a) Connection Bolts : ASTM A325
   b) Steel Pipe : ASTM A53 (GR. 35)
   c) HSS (Round) : ASTM 500 (GR. B-42)
   d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   e) Channel : ASTM A36 (GR. 36)
   f) Steel Solid Rod : ASTM A36 (GR. 36)
   g) Steel Plate : ASTM A36 (GR. 36)
   h) Steel Angle : ASTM A36 (GR. 36)
   i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

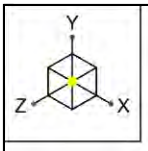
Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Face Horizontals	100	16.2	Pass
-	Support Arms	100	52.1	Pass
-	Diagonals	100	66.5	Pass
-	Connection Plates	100	43.4	Pass
-	Verticals	100	72.7	Pass
-	Tieback	100	10.4	Pass
-	Mount Pipes	100	23.1	Pass

5) RECOMMENDATIONS

The Commscope sector mounts, (Part# MTC3975083) has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-G standard for the proposed loading. (Refer to the RISA output for the specific members).

APPENDIX A

(RISA-3D Output)



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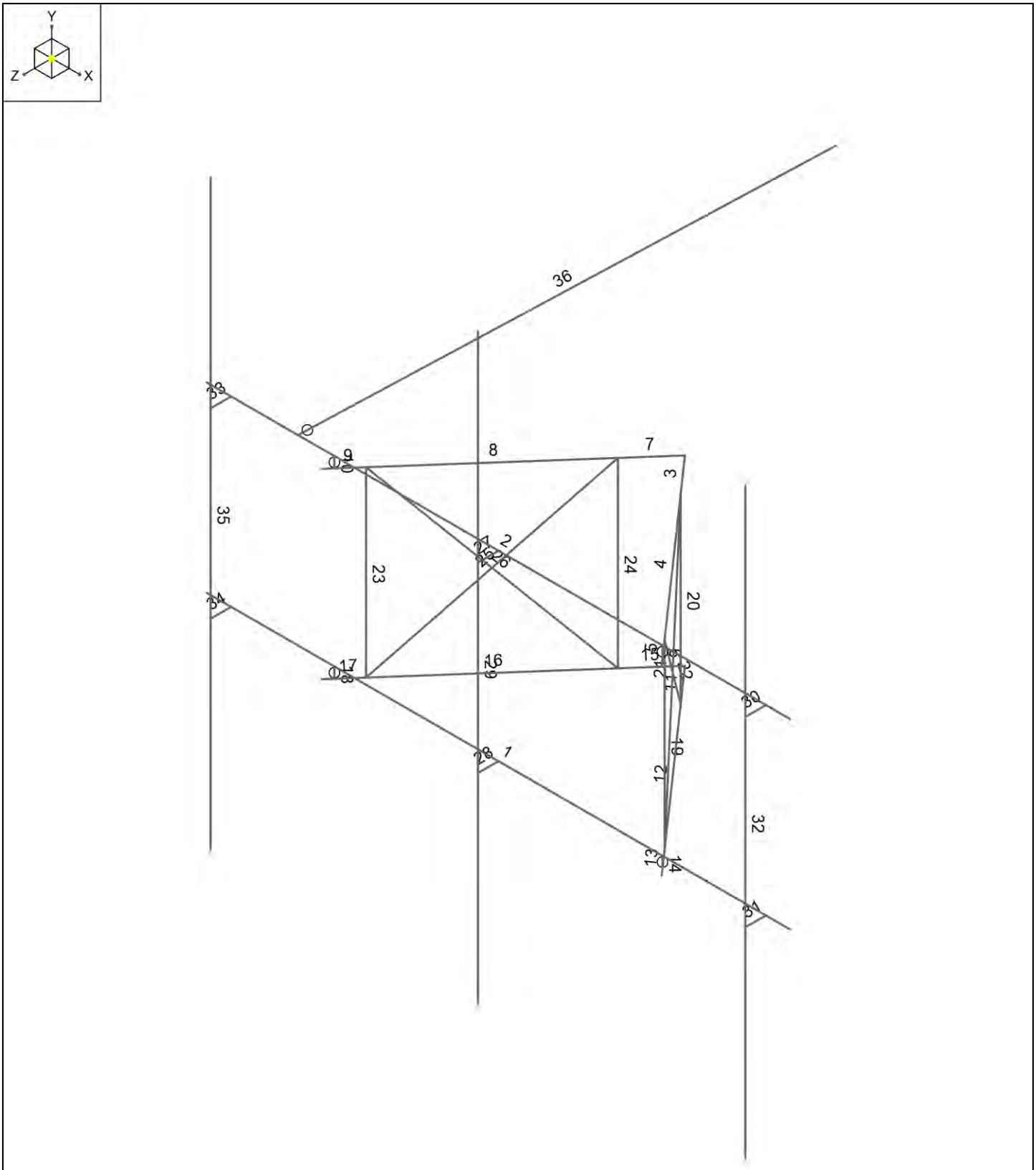

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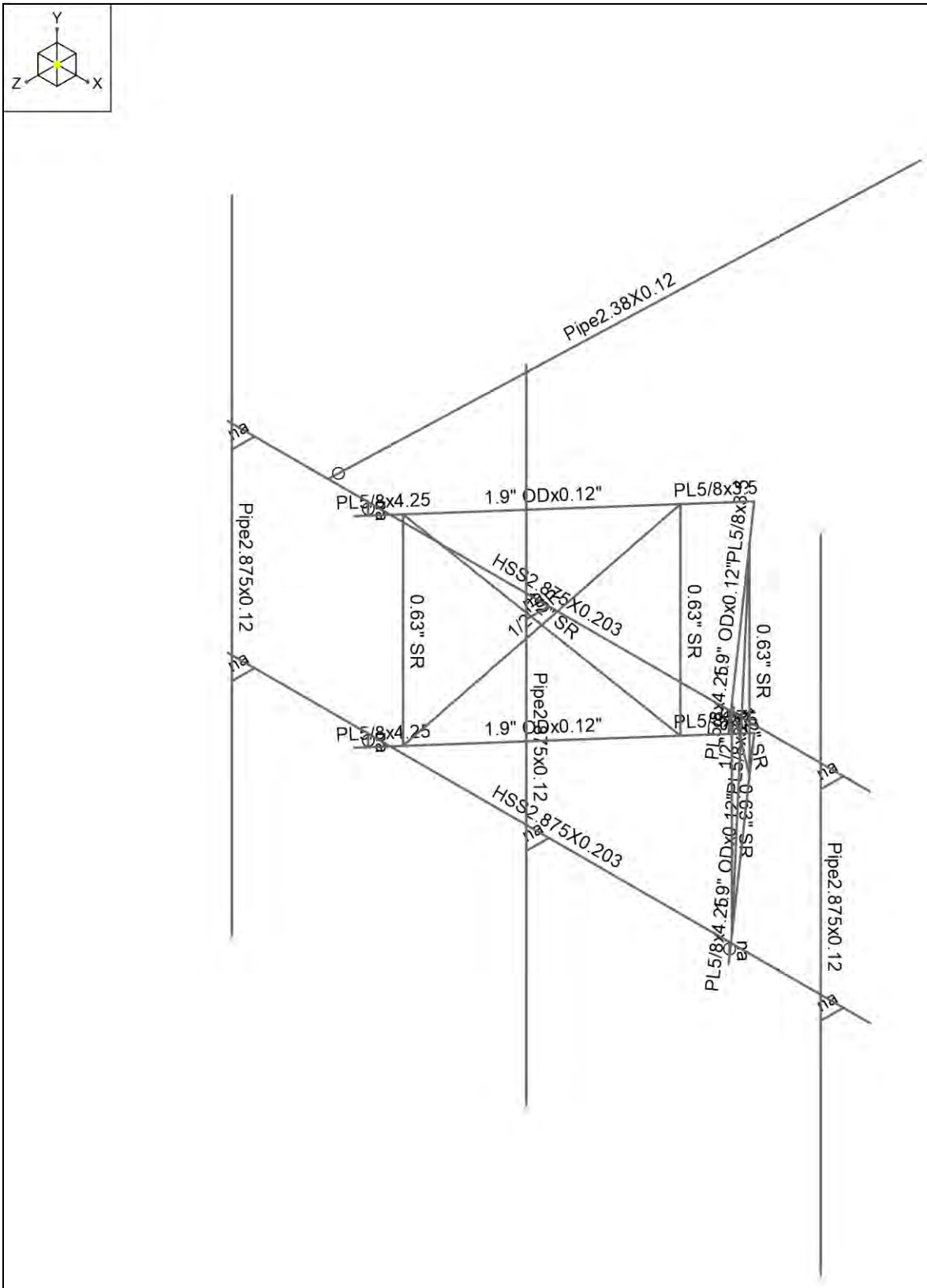

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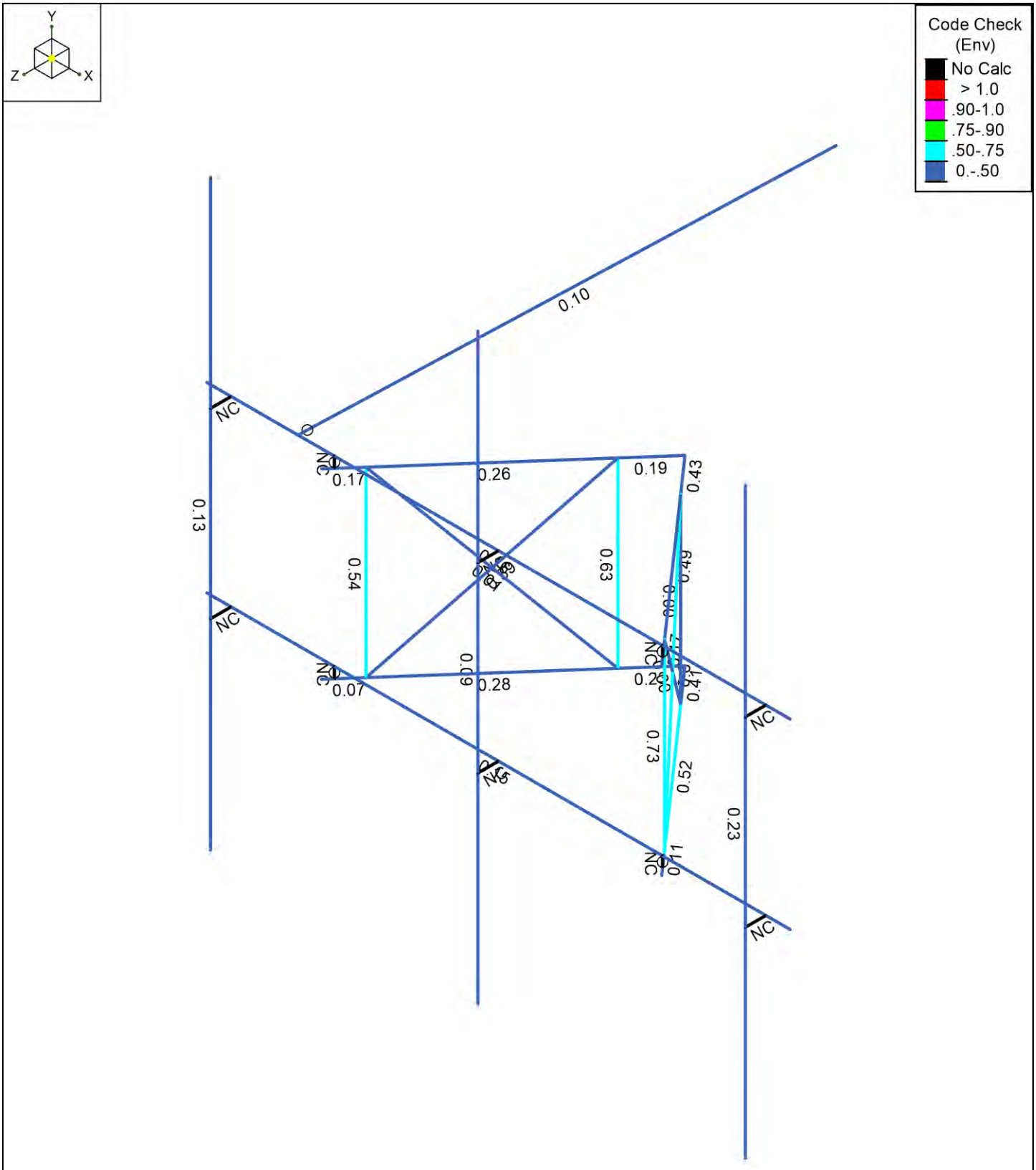

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Envelope Only Solution

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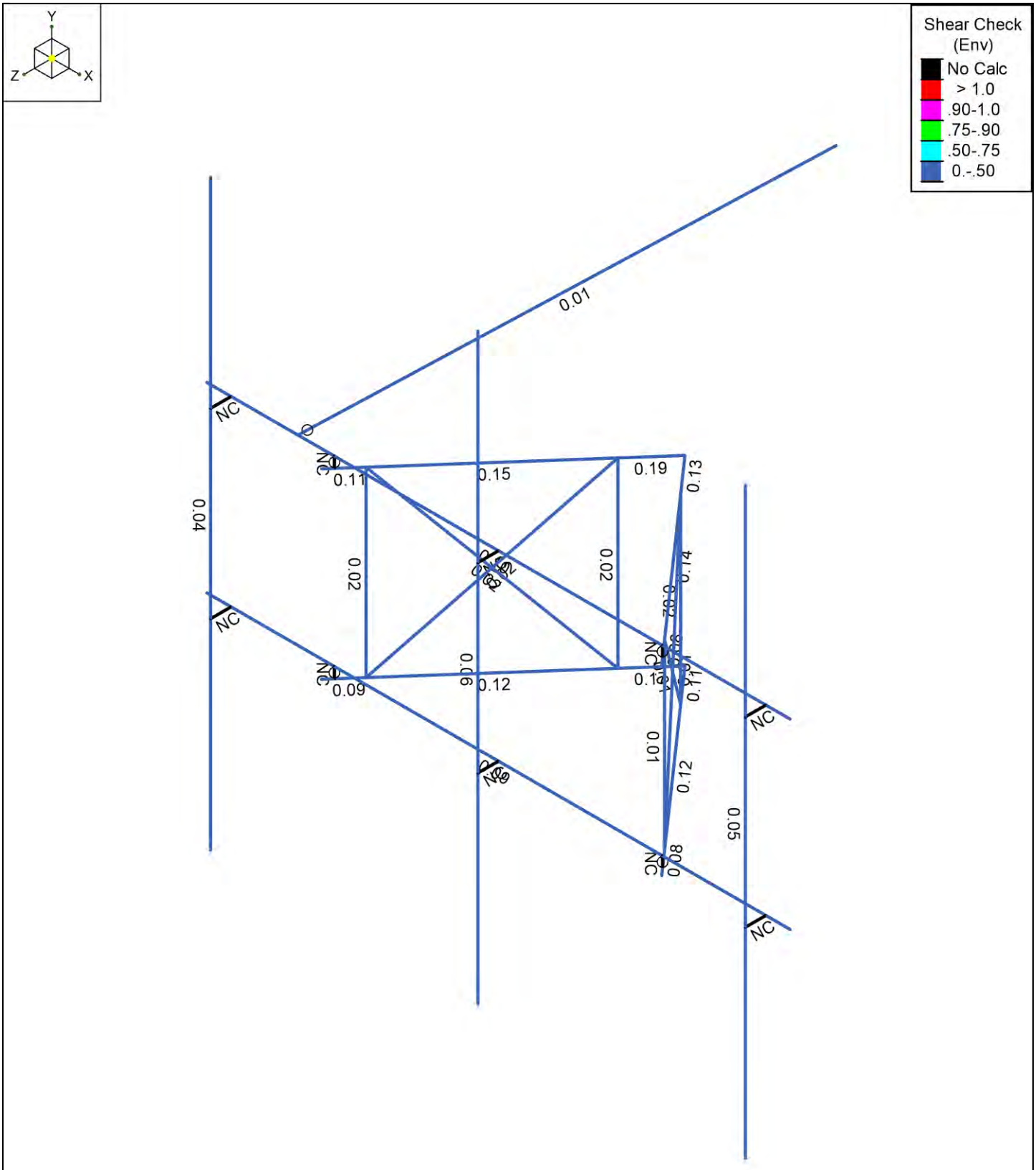

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	CT15879-A - West Hartford	SK-5
MP		Oct 19, 2021
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Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	-4	-2.354167	2.796875	
2	2	4	-2.354167	2.796875	
3	3	-4	0.145833	2.796875	
4	4	4	0.145833	2.796875	
5	5	0.467947	0	0.771833	
6	6	0.385368	0	0.677994	
7	7	2.091999	0	2.61733	
8	8	2.00942	0	2.523491	
9	9	2.332579	0	2.890714	
10	10	2.25	0.145833	2.796875	
11	11	2.25	0	2.796875	
12	12	0	0	0.24008	
13	13	-0.467947	0	0.771833	
14	14	-0.385368	0	0.677994	
15	15	-2.091999	0	2.61733	
16	16	-2.00942	0	2.523491	
17	17	-2.332579	0	2.890714	
18	18	-2.25	0.145833	2.796875	
19	19	-2.25	0	2.796875	
20	20	0.467947	-2.5	0.771833	
21	21	0.385368	-2.5	0.677994	
22	22	2.091999	-2.5	2.61733	
23	23	2.00942	-2.5	2.523491	
24	24	2.332579	-2.5	2.890714	
25	25	2.25	-2.354167	2.796875	
26	26	2.25	-2.5	2.796875	
27	27	0	-2.5	0.24008	
28	28	-0.467947	-2.5	0.771833	
29	29	-0.385368	-2.5	0.677994	
30	30	-2.091999	-2.5	2.61733	
31	31	-2.00942	-2.5	2.523491	
32	32	-2.332579	-2.5	2.890714	
33	33	-2.25	-2.354167	2.796875	
34	34	-2.25	-2.5	2.796875	
35	35	0.430236	0	0.72898	
36	36	2.047131	-2.5	2.566344	
37	37	2.047131	0	2.566344	
38	38	0.430236	-2.5	0.72898	
39	39	-0.430236	0	0.72898	
40	40	-2.047131	-2.5	2.566344	
41	41	-2.047131	0	2.566344	
42	42	-0.430236	-2.5	0.72898	
43	43	0	0.145833	2.796875	
44	44	0	0.145833	3.078125	
45	45	0	-2.354167	2.796875	
46	46	0	-2.354167	3.078125	
47	47	0	2.895833	3.078125	
48	48	0	-5.104167	3.078125	
49	49	3.666667	0.145833	2.796875	
50	50	3.666667	0.145833	3.078125	
51	51	3.666667	-2.354167	2.796875	
52	52	3.666667	-2.354167	3.078125	
53	53	3.666667	2.895833	3.078125	
54	54	3.666667	-5.104167	3.078125	
55	55	-3.666667	0.145833	2.796875	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	-3.666667	0.145833	3.078125	
57	57	-3.666667	-2.354167	2.796875	
58	58	-3.666667	-2.354167	3.078125	
59	59	-3.666667	2.895833	3.078125	
60	60	-3.666667	-5.104167	3.078125	
61	61	0	0	0	
62	62	-2.75	0.145833	2.796875	
63	63	-2.5	0.145833	-4.330127	
64	64	2.5	0	-4.330127	
65	65	-2.5	0	-4.330127	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]
1	12	Reaction	Reaction	Reaction
2	27	Reaction	Reaction	Reaction
3	63	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	A529 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
9	A500 Gr.42	29000	11154	0.3	0.65	0.49	42	1.4	58	1.3
10	A500 Gr.46	29000	11154	0.3	0.65	0.49	46	1.4	58	1.3
11	A500 Gr.C	29000	11154	0.3	0.65	0.49	46	1.4	62	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	MF-H1	HSS2.875X0.203	Beam	HSS Pipe	A500 Gr.C	Typical	1.59	1.45	1.45	2.89
2	MF- SA1	1.9" ODx0.12"	Beam	Pipe	A500 Gr.B RND	Typical	0.671	0.267	0.267	0.534
3	MF-D1	1/2" SR	VBrace	BAR	A529 Gr.50	Typical	0.196	0.003	0.003	0.006
4	MF-CP1	PL5/8x3.5	Beam	RECT	A572 Gr.50	Typical	2.205	0.073	2.251	0.259
5	MF-V1	0.63" SR	Column	BAR	A529 Gr.50	Typical	0.312	0.008	0.008	0.015
6	MF-CP2	PL5/8x4.25	Beam	RECT	A572 Gr.50	Typical	2.656	0.086	3.998	0.314
7	Tieback	Pipe2.38X0.12	Beam	Pipe	A500 Gr.C	Typical	0.852	0.545	0.545	1.091
8	MF-P1	Pipe2.875x0.12	Column	Pipe	A500 Gr.C	Typical	1.039	0.987	0.987	1.975

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		MF-H1	Beam	HSS Pipe	A500 Gr.C	Typical
2	2	3	4		MF-H1	Beam	HSS Pipe	A500 Gr.C	Typical
3	3	12	5	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
4	4	6	7		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
5	5	8	9	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
6	6	10	11	90	RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
7	7	12	13	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
8	8	14	15		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
9	9	16	17	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
10	10	18	19	90	RIGID	None	None	RIGID	Typical
11	11	27	20	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
12	12	21	22		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
13	13	23	24	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
14	14	25	26	90	RIGID	None	None	RIGID	Typical
15	15	27	28	90	MF-CP1	Beam	RECT	A572 Gr.50	Typical
16	16	29	30		MF- SA1	Beam	Pipe	A500 Gr.B RND	Typical
17	17	31	32	90	MF-CP2	Beam	RECT	A572 Gr.50	Typical
18	18	33	34	90	RIGID	None	None	RIGID	Typical
19	19	37	36		MF-V1	Column	BAR	A529 Gr.50	Typical
20	20	35	38		MF-V1	Column	BAR	A529 Gr.50	Typical
21	21	35	36		MF-D1	VBrace	BAR	A529 Gr.50	Typical
22	22	37	38		MF-D1	VBrace	BAR	A529 Gr.50	Typical
23	23	41	40		MF-V1	Column	BAR	A529 Gr.50	Typical
24	24	39	42		MF-V1	Column	BAR	A529 Gr.50	Typical
25	25	39	40		MF-D1	VBrace	BAR	A529 Gr.50	Typical
26	26	41	42		MF-D1	VBrace	BAR	A529 Gr.50	Typical
27	27	43	44	90	RIGID	None	None	RIGID	Typical
28	28	45	46	90	RIGID	None	None	RIGID	Typical
29	29	47	48		MF-P1	Column	Pipe	A500 Gr.C	Typical
30	30	49	50	90	RIGID	None	None	RIGID	Typical
31	31	51	52	90	RIGID	None	None	RIGID	Typical
32	32	53	54		MF-P1	Column	Pipe	A500 Gr.C	Typical
33	33	55	56	90	RIGID	None	None	RIGID	Typical
34	34	57	58	90	RIGID	None	None	RIGID	Typical
35	35	59	60		MF-P1	Column	Pipe	A500 Gr.C	Typical
36	36	62	63		Tieback	Beam	Pipe	A500 Gr.C	Typical

Member Advanced Data

	Label	I Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
1	1			Yes	N/A	None
2	2			Yes	N/A	None
3	3			Yes	N/A	None
4	4			Yes	N/A	None
5	5			Yes	N/A	None
6	6	OOOOXO		Yes	** NA **	None
7	7			Yes	N/A	None
8	8			Yes	Default	None
9	9			Yes	N/A	None
10	10	OOOOXO		Yes	** NA **	None
11	11			Yes	N/A	None
12	12			Yes	N/A	None
13	13			Yes	N/A	None
14	14	OOOOXO		Yes	** NA **	None
15	15			Yes	N/A	None
16	16			Yes	N/A	None
17	17			Yes	N/A	None
18	18	OOOOXO		Yes	** NA **	None
19	19			Yes	** NA **	None
20	20		Euler Buckling	Yes	** NA **	None
21	21			Yes	** NA **	None
22	22		Euler Buckling	Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
23	23			Yes	** NA **	None
24	24			Yes	** NA **	None
25	25			Yes	** NA **	None
26	26		Euler Buckling	Yes	** NA **	None
27	27			Yes	** NA **	None
28	28			Yes	** NA **	None
29	29			Yes	** NA **	None
30	30			Yes	** NA **	None
31	31			Yes	** NA **	None
32	32			Yes	** NA **	None
33	33			Yes	** NA **	None
34	34			Yes	** NA **	None
35	35			Yes	** NA **	None
36	36	BenPIN		Yes	Default	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	MF-H1	8	Lbyy	Lateral
2	2	MF-H1	8	Lbyy	Lateral
3	3	MF-CP1	0.708	Lbyy	Lateral
4	4	MF- SA1	2.583	Lbyy	Lateral
5	5	MF-CP2	0.489	Lbyy	Lateral
6	7	MF-CP1	0.708	Lbyy	Lateral
7	8	MF- SA1	2.583	Lbyy	Lateral
8	9	MF-CP2	0.489	Lbyy	Lateral
9	11	MF-CP1	0.708	Lbyy	Lateral
10	12	MF- SA1	2.583	Lbyy	Lateral
11	13	MF-CP2	0.489	Lbyy	Lateral
12	15	MF-CP1	0.708	Lbyy	Lateral
13	16	MF- SA1	2.583	Lbyy	Lateral
14	17	MF-CP2	0.489	Lbyy	Lateral
15	19	MF-V1	2.5	Lbyy	Lateral
16	20	MF-V1	2.5	Lbyy	Lateral
17	21	MF-D1	3.499	Lbyy	Lateral
18	22	MF-D1	3.499	Lbyy	Lateral
19	23	MF-V1	2.5	Lbyy	Lateral
20	24	MF-V1	2.5	Lbyy	Lateral
21	25	MF-D1	3.499	Lbyy	Lateral
22	26	MF-D1	3.499	Lbyy	Lateral
23	29	MF-P1	8	Lbyy	Lateral
24	32	MF-P1	8	Lbyy	Lateral
25	35	MF-P1	8	Lbyy	Lateral
26	36	Tieback	7.131	Lbyy	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Y	-0.032	%15
2	32	Y	-0.032	%85
3	32	Y	-0.075	%25
4	32	Y	-0.064	%50
5	32	Y	0	0
6	8	Y	-0.022	%50
7	8	Y	0	0

Member Point Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
8	8	Y	0	0
9	8	Y	0	0
10	8	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.156	%15
2	32	Z	-0.156	%85
3	32	Z	-0.049	%25
4	32	Z	-0.049	%50
5	32	Z	0	0
6	8	Z	-0.05	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.062	%15
2	32	X	-0.062	%85
3	32	X	-0.03	%25
4	32	X	-0.026	%50
5	32	X	0	0
6	8	X	-0.028	%50
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.07	%15
2	32	Z	-0.07	%85
3	32	Z	-0.031	%25
4	32	Z	-0.031	%50
5	32	Z	0	0
6	8	Z	-0.032	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.038	%15
2	32	X	-0.038	%85
3	32	X	-0.023	%25
4	32	X	-0.021	%50
5	32	X	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
6	8	X	-0.022	%50
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Z	-0.017	%15
2	32	Z	-0.017	%85
3	32	Z	-0.005	%25
4	32	Z	-0.005	%50
5	32	Z	0	0
6	8	Z	-0.006	%50
7	8	Z	0	0
8	8	Z	0	0
9	8	Z	0	0
10	8	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	X	-0.007	%15
2	32	X	-0.007	%85
3	32	X	-0.003	%25
4	32	X	-0.003	%50
5	32	X	0	0
6	8	X	-0.003	%50
7	8	X	0	0
8	8	X	0	0
9	8	X	0	0
10	8	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	32	Y	-0.306	%15
2	32	Y	-0.306	%85
3	32	Y	-0.112	%25
4	32	Y	-0.109	%50
5	32	Y	0	0
6	8	Y	-0.113	%50
7	8	Y	0	0
8	8	Y	0	0
9	8	Y	0	0
10	8	Y	0	0

Member Point Loads (BLC 13 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%95

Member Point Loads (BLC 14 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	2	Y	-0.25	%95

Member Point Loads (BLC 15 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	16	Y	-0.25	%50

Member Point Loads (BLC 16 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	8	Y	-0.25	%50

Member Point Loads (BLC 17 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	12	Y	-0.25	%50

Member Point Loads (BLC 18 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	4	Y	-0.25	%50

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.007	-0.007	0	%100
2	2	Z	-0.007	-0.007	0	%100
3	3	Z	-0.002	-0.002	0	%100
4	4	Z	-0.004	-0.004	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	7	Z	-0.002	-0.002	0	%100
7	8	Z	-0.004	-0.004	0	%100
8	9	Z	-0.002	-0.002	0	%100
9	11	Z	-0.002	-0.002	0	%100
10	12	Z	-0.004	-0.004	0	%100
11	13	Z	-0.002	-0.002	0	%100
12	15	Z	-0.002	-0.002	0	%100
13	16	Z	-0.004	-0.004	0	%100
14	17	Z	-0.002	-0.002	0	%100
15	19	Z	-0.002	-0.002	0	%100
16	20	Z	-0.002	-0.002	0	%100
17	21	Z	-0.001	-0.001	0	%100
18	22	Z	-0.001	-0.001	0	%100
19	23	Z	-0.002	-0.002	0	%100
20	24	Z	-0.002	-0.002	0	%100
21	25	Z	-0.001	-0.001	0	%100
22	26	Z	-0.001	-0.001	0	%100
23	29	Z	-0.007	-0.007	0	%100
24	32	Z	-0.007	-0.007	0	%100
25	35	Z	-0.007	-0.007	0	%100
26	36	Z	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.007	-0.007	0	%100
2	2	X	-0.007	-0.007	0	%100
3	3	X	-0.002	-0.002	0	%100
4	4	X	-0.004	-0.004	0	%100
5	5	X	-0.002	-0.002	0	%100
6	7	X	-0.002	-0.002	0	%100
7	8	X	-0.004	-0.004	0	%100
8	9	X	-0.002	-0.002	0	%100
9	11	X	-0.002	-0.002	0	%100
10	12	X	-0.004	-0.004	0	%100
11	13	X	-0.002	-0.002	0	%100
12	15	X	-0.002	-0.002	0	%100
13	16	X	-0.004	-0.004	0	%100
14	17	X	-0.002	-0.002	0	%100
15	19	X	-0.002	-0.002	0	%100
16	20	X	-0.002	-0.002	0	%100
17	21	X	-0.001	-0.001	0	%100
18	22	X	-0.001	-0.001	0	%100
19	23	X	-0.002	-0.002	0	%100
20	24	X	-0.002	-0.002	0	%100
21	25	X	-0.001	-0.001	0	%100
22	26	X	-0.001	-0.001	0	%100
23	29	X	-0.007	-0.007	0	%100
24	32	X	-0.007	-0.007	0	%100
25	35	X	-0.007	-0.007	0	%100
26	36	X	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.004	-0.004	0	%100
2	2	Z	-0.004	-0.004	0	%100
3	3	Z	-0.013	-0.013	0	%100
4	4	Z	-0.004	-0.004	0	%100
5	5	Z	-0.015	-0.015	0	%100
6	7	Z	-0.013	-0.013	0	%100
7	8	Z	-0.004	-0.004	0	%100
8	9	Z	-0.015	-0.015	0	%100
9	11	Z	-0.013	-0.013	0	%100
10	12	Z	-0.004	-0.004	0	%100
11	13	Z	-0.015	-0.015	0	%100
12	15	Z	-0.013	-0.013	0	%100
13	16	Z	-0.004	-0.004	0	%100
14	17	Z	-0.015	-0.015	0	%100
15	19	Z	-0.007	-0.007	0	%100
16	20	Z	-0.007	-0.007	0	%100
17	21	Z	-0.006	-0.006	0	%100
18	22	Z	-0.006	-0.006	0	%100
19	23	Z	-0.007	-0.007	0	%100
20	24	Z	-0.007	-0.007	0	%100
21	25	Z	-0.006	-0.006	0	%100
22	26	Z	-0.006	-0.006	0	%100
23	29	Z	-0.004	-0.004	0	%100
24	32	Z	-0.004	-0.004	0	%100
25	35	Z	-0.004	-0.004	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
26	36	Z	-0.004	-0.004	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.004	-0.004	0	%100
2	2	X	-0.004	-0.004	0	%100
3	3	X	-0.013	-0.013	0	%100
4	4	X	-0.004	-0.004	0	%100
5	5	X	-0.015	-0.015	0	%100
6	7	X	-0.013	-0.013	0	%100
7	8	X	-0.004	-0.004	0	%100
8	9	X	-0.015	-0.015	0	%100
9	11	X	-0.013	-0.013	0	%100
10	12	X	-0.004	-0.004	0	%100
11	13	X	-0.015	-0.015	0	%100
12	15	X	-0.013	-0.013	0	%100
13	16	X	-0.004	-0.004	0	%100
14	17	X	-0.015	-0.015	0	%100
15	19	X	-0.007	-0.007	0	%100
16	20	X	-0.007	-0.007	0	%100
17	21	X	-0.006	-0.006	0	%100
18	22	X	-0.006	-0.006	0	%100
19	23	X	-0.007	-0.007	0	%100
20	24	X	-0.007	-0.007	0	%100
21	25	X	-0.006	-0.006	0	%100
22	26	X	-0.006	-0.006	0	%100
23	29	X	-0.004	-0.004	0	%100
24	32	X	-0.004	-0.004	0	%100
25	35	X	-0.004	-0.004	0	%100
26	36	X	-0.004	-0.004	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.0004	-0.0004	0	%100
2	2	Z	-0.0004	-0.0004	0	%100
3	3	Z	-0.0002	-0.0002	0	%100
4	4	Z	-0.0002	-0.0002	0	%100
5	5	Z	-0.0002	-0.0002	0	%100
6	7	Z	-0.0002	-0.0002	0	%100
7	8	Z	-0.0002	-0.0002	0	%100
8	9	Z	-0.0002	-0.0002	0	%100
9	11	Z	-0.0002	-0.0002	0	%100
10	12	Z	-0.0002	-0.0002	0	%100
11	13	Z	-0.0002	-0.0002	0	%100
12	15	Z	-0.0002	-0.0002	0	%100
13	16	Z	-0.0002	-0.0002	0	%100
14	17	Z	-0.0002	-0.0002	0	%100
15	19	Z	-0.0002	-0.0002	0	%100
16	20	Z	-0.0002	-0.0002	0	%100
17	21	Z	-1e-04	-1e-04	0	%100
18	22	Z	-1e-04	-1e-04	0	%100
19	23	Z	-0.0002	-0.0002	0	%100
20	24	Z	-0.0002	-0.0002	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
21	25	Z	-1e-04	-1e-04	0	%100
22	26	Z	-1e-04	-1e-04	0	%100
23	29	Z	-0.0004	-0.0004	0	%100
24	32	Z	-0.0004	-0.0004	0	%100
25	35	Z	-0.0004	-0.0004	0	%100
26	36	Z	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.0004	-0.0004	0	%100
2	2	X	-0.0004	-0.0004	0	%100
3	3	X	-0.0002	-0.0002	0	%100
4	4	X	-0.0002	-0.0002	0	%100
5	5	X	-0.0002	-0.0002	0	%100
6	7	X	-0.0002	-0.0002	0	%100
7	8	X	-0.0002	-0.0002	0	%100
8	9	X	-0.0002	-0.0002	0	%100
9	11	X	-0.0002	-0.0002	0	%100
10	12	X	-0.0002	-0.0002	0	%100
11	13	X	-0.0002	-0.0002	0	%100
12	15	X	-0.0002	-0.0002	0	%100
13	16	X	-0.0002	-0.0002	0	%100
14	17	X	-0.0002	-0.0002	0	%100
15	19	X	-0.0002	-0.0002	0	%100
16	20	X	-0.0002	-0.0002	0	%100
17	21	X	-1e-04	-1e-04	0	%100
18	22	X	-1e-04	-1e-04	0	%100
19	23	X	-0.0002	-0.0002	0	%100
20	24	X	-0.0002	-0.0002	0	%100
21	25	X	-1e-04	-1e-04	0	%100
22	26	X	-1e-04	-1e-04	0	%100
23	29	X	-0.0004	-0.0004	0	%100
24	32	X	-0.0004	-0.0004	0	%100
25	35	X	-0.0004	-0.0004	0	%100
26	36	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.025	-0.025	0	%100
2	2	Y	-0.025	-0.025	0	%100
3	3	Y	-0.028	-0.028	0	%100
4	4	Y	-0.022	-0.022	0	%100
5	5	Y	-0.031	-0.031	0	%100
6	7	Y	-0.028	-0.028	0	%100
7	8	Y	-0.022	-0.022	0	%100
8	9	Y	-0.031	-0.031	0	%100
9	11	Y	-0.028	-0.028	0	%100
10	12	Y	-0.022	-0.022	0	%100
11	13	Y	-0.031	-0.031	0	%100
12	15	Y	-0.028	-0.028	0	%100
13	16	Y	-0.022	-0.022	0	%100
14	17	Y	-0.031	-0.031	0	%100
15	19	Y	-0.016	-0.016	0	%100

Member Distributed Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
16	20	Y	-0.016	-0.016	0	%100
17	21	Y	-0.016	-0.016	0	%100
18	22	Y	-0.016	-0.016	0	%100
19	23	Y	-0.016	-0.016	0	%100
20	24	Y	-0.016	-0.016	0	%100
21	25	Y	-0.016	-0.016	0	%100
22	26	Y	-0.016	-0.016	0	%100
23	29	Y	-0.025	-0.025	0	%100
24	32	Y	-0.025	-0.025	0	%100
25	35	Y	-0.025	-0.025	0	%100
26	36	Y	-0.023	-0.023	0	%100

Node Loads and Enforced Displacements (BLC 9 : Live Load a)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	57	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 10 : Live Load b)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	45	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 11 : Live Load c)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	51	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead	DL	-1		10	
2	0 Wind - No Ice	WLZ			10	26
3	90 Wind - No Ice	WLX			10	26
4	0 Wind - Ice	WLZ			10	26
5	90 Wind - Ice	WLX			10	26
6	0 Wind - Service	WLZ			10	26
7	90 Wind - Service	WLX			10	26
8	Ice	OL1			10	26
9	Live Load a	LL		1		
10	Live Load b	LL		1		
11	Live Load c	LL		1		
12	Live Load d	LL				
13	Maint LL 1	LL			1	
14	Maint LL 2	LL			1	
15	Maint LL 3	LL			1	
16	Maint LL 4	LL			1	
17	Maint LL 5	LL			1	
18	Maint LL 6	LL			1	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	0.9 D + 1.6 - 0 W	Yes	Y	1	0.9	2	1.6				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
3	0.9 D + 1.6 - 30 W	Yes	Y	1	0.9	2	1.386	3	0.8		
4	0.9 D + 1.6 - 60 W	Yes	Y	1	0.9	3	1.386	2	0.8		
5	0.9 D + 1.6 - 90 W	Yes	Y	1	0.9	3	1.6				
6	0.9 D + 1.6 - 120 W	Yes	Y	1	0.9	3	1.386	2	-0.8		
7	0.9 D + 1.6 - 150 W	Yes	Y	1	0.9	2	-1.386	3	0.8		
8	0.9 D + 1.6 - 180 W	Yes	Y	1	0.9	2	-1.6				
9	0.9 D + 1.6 - 210 W	Yes	Y	1	0.9	2	-1.386	3	-0.8		
10	0.9 D + 1.6 - 240 W	Yes	Y	1	0.9	3	-1.386	2	-0.8		
11	0.9 D + 1.6 - 270 W	Yes	Y	1	0.9	3	-1.6				
12	0.9 D + 1.6 - 300 W	Yes	Y	1	0.9	3	-1.386	2	0.8		
13	0.9 D + 1.6 - 330 W	Yes	Y	1	0.9	2	1.386	3	-0.8		
14	1.2 D + 1.6 - 0 W	Yes	Y	1	1.2	2	1.6				
15	1.2 D + 1.6 - 30 W	Yes	Y	1	1.2	2	1.386	3	0.8		
16	1.2 D + 1.6 - 60 W	Yes	Y	1	1.2	3	1.386	2	0.8		
17	1.2 D + 1.6 - 90 W	Yes	Y	1	1.2	3	1.6				
18	1.2 D + 1.6 - 120 W	Yes	Y	1	1.2	3	1.386	2	-0.8		
19	1.2 D + 1.6 - 150 W	Yes	Y	1	1.2	2	-1.386	3	0.8		
20	1.2 D + 1.6 - 180 W	Yes	Y	1	1.2	2	-1.6				
21	1.2 D + 1.6 - 210 W	Yes	Y	1	1.2	2	-1.386	3	-0.8		
22	1.2 D + 1.6 - 240 W	Yes	Y	1	1.2	3	-1.386	2	-0.8		
23	1.2 D + 1.6 - 270 W	Yes	Y	1	1.2	3	-1.6				
24	1.2 D + 1.6 - 300 W	Yes	Y	1	1.2	3	-1.386	2	0.8		
25	1.2 D + 1.6 - 330 W	Yes	Y	1	1.2	2	1.386	3	-0.8		
26	0.9 D + 1.6 - 0 W/Ice	Yes	Y	1	0.9	4	1.6			8	1
27	0.9 D + 1.6 - 30 W/Ice	Yes	Y	1	0.9	4	1.386	5	0.8	8	1
28	0.9 D + 1.6 - 60 W/Ice	Yes	Y	1	0.9	5	1.386	4	0.8	8	1
29	0.9 D + 1.6 - 90 W/Ice	Yes	Y	1	0.9	5	1.6			8	1
30	0.9 D + 1.6 - 120 W/Ice	Yes	Y	1	0.9	5	1.386	4	-0.8	8	1
31	0.9 D + 1.6 - 150 W/Ice	Yes	Y	1	0.9	4	-1.386	5	0.8	8	1
32	0.9 D + 1.6 - 180 W/Ice	Yes	Y	1	0.9	4	-1.6			8	1
33	0.9 D + 1.6 - 210 W/Ice	Yes	Y	1	0.9	4	-1.386	5	-0.8	8	1
34	0.9 D + 1.6 - 240 W/Ice	Yes	Y	1	0.9	5	-1.386	4	-0.8	8	1
35	0.9 D + 1.6 - 270 W/Ice	Yes	Y	1	0.9	5	-1.6			8	1
36	0.9 D + 1.6 - 300 W/Ice	Yes	Y	1	0.9	5	-1.386	4	0.8	8	1
37	0.9 D + 1.6 - 330 W/Ice	Yes	Y	1	0.9	4	1.386	5	-0.8	8	1
38	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
39	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
40	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
41	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
42	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
43	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
44	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
45	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
46	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
47	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
48	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
49	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
50	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			9	1.5
51	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	9	1.5
52	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	9	1.5
53	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			9	1.5
54	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	9	1.5
55	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	9	1.5
56	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			9	1.5
57	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	9	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
58	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	9	1.5
59	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			9	1.5
60	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	9	1.5
61	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	9	1.5
62	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			10	1.5
63	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	10	1.5
64	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	10	1.5
65	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			10	1.5
66	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	10	1.5
67	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	10	1.5
68	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			10	1.5
69	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	10	1.5
70	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	10	1.5
71	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			10	1.5
72	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	10	1.5
73	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	10	1.5
74	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
75	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
76	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
77	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
78	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
79	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
80	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
81	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
82	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
83	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
84	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
85	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
86	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
87	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
88	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
89	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
90	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
91	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
92	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
93	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
94	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
95	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
96	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
97	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
98	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					13	1.5
99	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					14	1.5
100	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					15	1.5
101	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					16	1.5
102	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					17	1.5
103	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					18	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	12	max	0.8	53	1.83	43	1.558	13	0	103	0	103	0	103
2		min	-1.893	35	0.175	11	-4.33	31	0	1	0	1	0	1
3	27	max	1.699	29	1.617	49	3.434	26	0	103	0	103	0	103
4		min	-0.784	59	0.167	5	-0.012	8	0	1	0	1	0	1
5	63	max	0.029	2	0.095	48	1.182	18	0	103	0	103	0	103
6		min	-0.029	8	0.009	4	-1.183	24	0	1	0	1	0	1

Envelope Node Reactions (Continued)

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
7	Totals:	max	0.995	17	3.463	42	1.398	2						
8		min	-0.995	11	0.452	13	-1.398	8						

Envelope AISC 13TH (360-05): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	HSS2.875X0.203	0.152	7.667	35	0.086	6.25		31	33.355	65.826	4.727	4.727	2.516	H1-1b
2	2	HSS2.875X0.203	0.162	6.25	20	0.099	1.75		30	33.355	65.826	4.727	4.727	1.523	H1-1b
3	3	PL5/8x3.5	0.434	0.583	42	0.128	0.583	y	42	84.578	99.225	1.302	7.235	1.037	H1-1b
4	4	1.9" ODx0.12"	0.491	0.135	42	0.139	2.449		42	21.867	25.364	1.2	1.2	2.029	H1-1b
5	5	PL5/8x4.25	0.17	0.127	31	0.078	0.362	y	48	110.629	119.531	1.556	10.583	1.47	H1-1b
6	7	PL5/8x3.5	0.191	0.583	48	0.188	0.583	y	31	84.578	99.225	1.302	7.235	2.241	H1-1b
7	8	1.9" ODx0.12"	0.262	0.538	36	0.148	2.449		30	21.867	25.364	1.2	1.2	1.119	H1-1b
8	9	PL5/8x4.25	0.172	0.362	25	0.107	0.127	y	30	110.629	119.531	1.556	10.583	1.425	H1-1b
9	11	PL5/8x3.5	0.413	0.583	41	0.114	0	y	35	84.578	99.225	1.302	7.235	1.071	H1-1b
10	12	1.9" ODx0.12"	0.521	0.135	41	0.123	2.449		32	21.867	25.364	1.2	1.2	1.98	H1-1b
11	13	PL5/8x4.25	0.107	0.362	26	0.08	0.362	y	32	110.629	119.531	1.556	10.583	1.47	H1-1b
12	15	PL5/8x3.5	0.226	0.583	36	0.173	0	y	40	84.578	99.225	1.302	7.235	1.241	H1-1b
13	16	1.9" ODx0.12"	0.275	0.135	36	0.123	2.449		44	21.867	25.364	1.2	1.2	1.387	H1-1b
14	17	PL5/8x4.25	0.072	0.362	37	0.09	0.362	y	33	110.629	119.531	1.556	10.583	1.543	H1-1b
15	19	0.63" SR	0.727	2.5	38	0.007	0		29	1.941	14.028	0.147	0.147	2.229	H1-1a
16	20	0.63" SR	0.004	0	2	0.018	0		31	1.941	14.028	0.147	0.147	2.216	H1-1b*
17	21	1/2" SR	0.665	3.499	28	0.014	3.499		37	0.393	8.836	0.074	0.074	2.108	H1-1a
18	22	1/2" SR	0	3.499	103	0.007	0		55	0.393	8.836	0.074	0.074	1	H1-1a
19	23	0.63" SR	0.537	0	36	0.015	2.5		30	1.941	14.028	0.147	0.147	2.453	H1-1a
20	24	0.63" SR	0.627	2.5	37	0.019	0		31	1.941	14.028	0.147	0.147	2.368	H1-1a
21	25	1/2" SR	0.39	3.499	26	0.024	3.499		26	0.393	8.836	0.074	0.074	1.975	H1-1b
22	26	1/2" SR	0.014	3.499	6	0.015	0		19	0.393	8.836	0.074	0.074	3	H1-1b*
23	29	Pipe2.875x0.12	0.093	2.75	19	0.063	2.75		30	22.398	42.998	3.144	3.144	3	H1-1b
24	32	Pipe2.875x0.12	0.231	5.25	38	0.047	5.25		74	22.398	42.998	3.144	3.144	3	H1-1b
25	35	Pipe2.875x0.12	0.126	5.25	55	0.041	2.75		30	22.398	42.998	3.144	3.144	3	H1-1b
26	36	Pipe2.38X0.12	0.104	3.566	30	0.009	7.131		47	16.33	35.273	2.115	2.115	1.136	H1-1b

APPENDIX B
(Additional Calculations)

B+T GRP

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

INPUT

[REF: ANSI/TIA-222-G2005]

Tower Type		:	Guyed		
Tower Height		:	309	ft	
Mount Elevation		:	100	ft	
Antenna Elevation		:	100	ft	
Crest Height		:	0	ft	
Structure Class		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5]
Topography Category		:	1		[Sec. 2.6.6.2]
Wind Velocity	V	:	90	mph	[Annex B]
Ice wind Velocity	V_i	:	50	mph	[Annex B]
Service Velocity	V_s	:	30	mph	[Annex B]
Base Ice thickness	t_i	:	1.5	in	[Annex B]

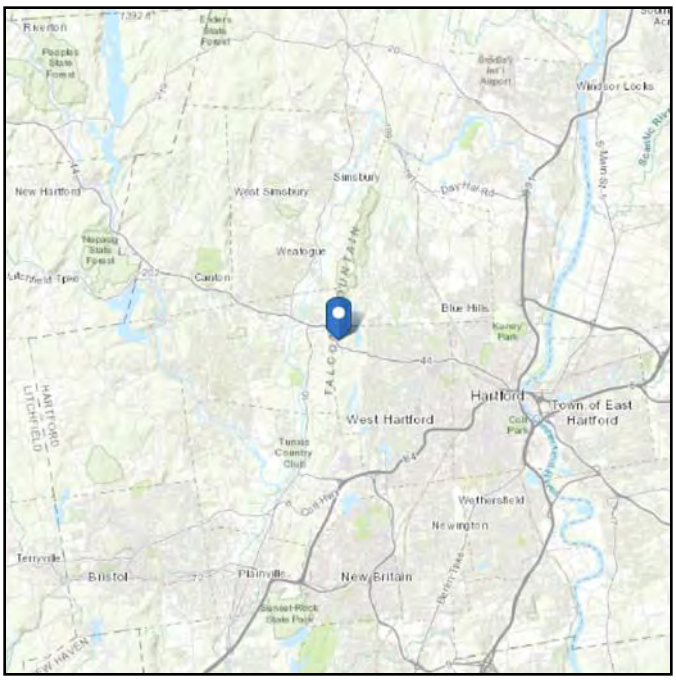
ANTENNAS

	Manufacturer	Model	Height (in)	Front Width (in)	Side Width (in)	Weight (lbs)	Shape	Quantity	Location (%)
Mount Pipe **29**									
	JMA Wireless	MX08FRO665-21	72.00	20.00	8.00	64.50	Flat	0.5	15
	JMA Wireless	MX08FRO665-21	72.00	20.00	8.00	64.50	Flat	0.5	85
	Fujitsu	TA08025-B605	15.75	14.96	9.05	74.95	Flat	1	25
	Fujitsu	TA08025-B604	15.75	14.96	7.87	63.93	Flat	1	50
Mount Pipe **8**									
	Raycap	RDIDC-9181-PF-48	16.57	14.57	8.15	21.85	Flat	1	50
Mount Pipe									
Mount Pipe									
Mount Pipe									
Mount Pipe									

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Elevation:**	680.57 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.796802
Soil Class:	D - Default (see Section 11.4.3)	**Longitude:**	-72.79683



Wind

Results:

Wind Speed:	116 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Sat Oct 16 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

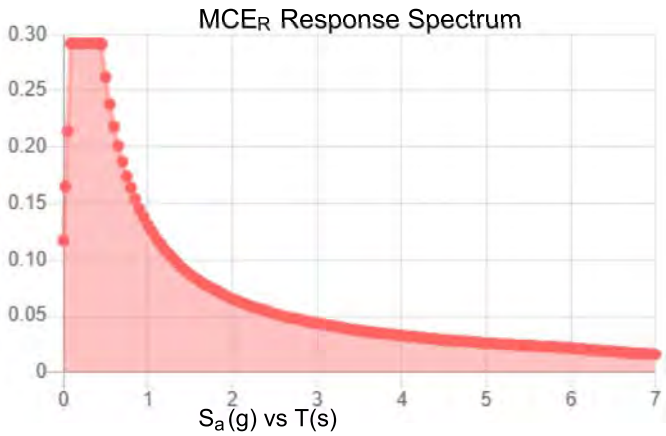
Seismic

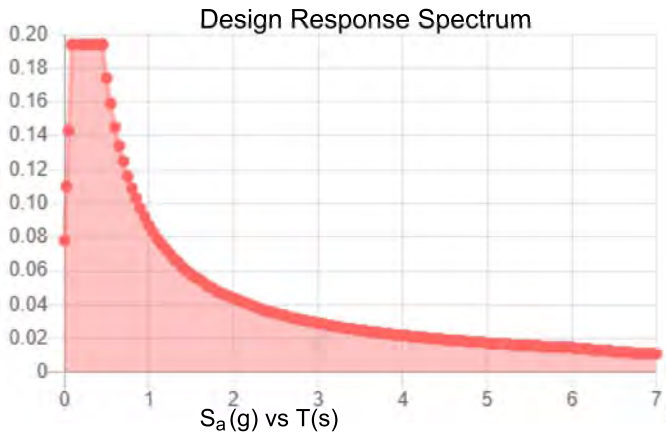
Site Soil Class: D - Default (see Section 11.4.3)

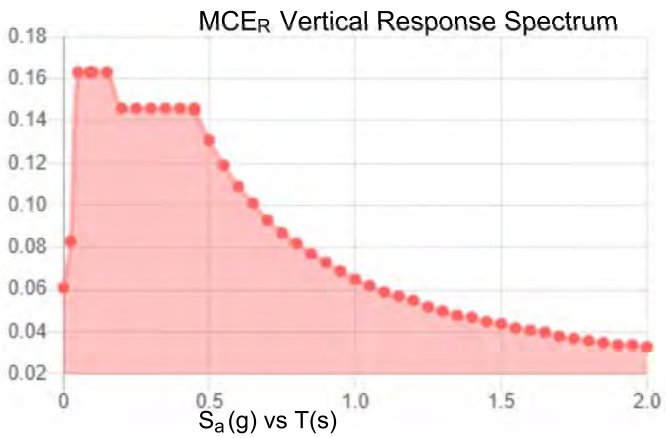
Results:

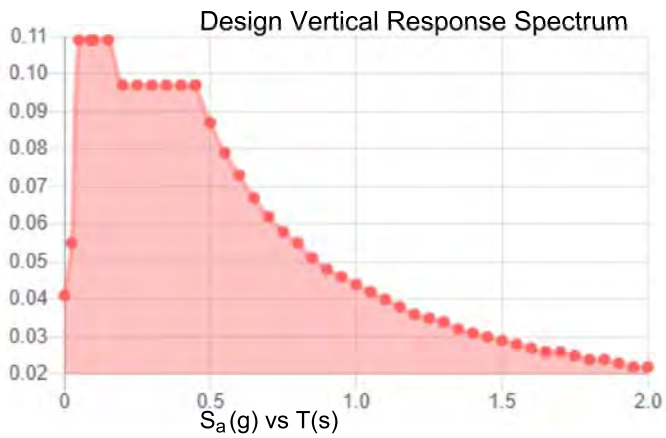
S_S :	0.182	S_{D1} :	0.087
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.097
F_v :	2.4	PGA_M :	0.156
S_{MS} :	0.292	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.194	C_v :	0.7

Seismic Design Category B









Data Accessed: Sat Oct 16 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Sat Oct 16 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

EXHIBIT 10

Construction Drawings

dish wireless™

DISH Wireless L.L.C. SITE ID:

BOBDL00129A

DISH Wireless L.L.C. SITE ADDRESS:

3114 ALBANY AVENUE
WEST HARTFORD, CT 06117

SBA APPROVED

By Stephen Roth at 4:57:27 AM, 12/10/2021

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (3) PROPOSED ANTENNA SECTOR FRAMES
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)

SITE INFORMATION

PROPERTY OWNER:	EDUCATIONAL MEDIA FOUNDATION
ADDRESS:	5700 WEST OAKS BOULEVARD ROCKLIN, CA 95765
TOWER TYPE:	GUYED TOWER
TOWER CO SITE ID:	CT15879-A
TOWER APP NUMBER:	167827
COUNTY:	HARTFORD
LATITUDE (NAD 83):	41° 47' 48.49" N 41.79680244
LONGITUDE (NAD 83):	72° 47' 48.59" W -72.79683022
ZONING JURISDICTION:	N/A
ZONING DISTRICT:	R-20
PARCEL NUMBER:	09003155-0031 2 3114 0001
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	CROWN CASTLE

PROJECT DIRECTORY

APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	SBA COMMUNICATAIONS CORP. 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	DAVE EVANS devans@sbasite.com
CONST. MANAGER:	CHAD WILCOX chad.wilcox@dish.com
RF ENGINEER:	BOSSENER CHARLES bossener.charles@dish.com

CONNECTICUT CODE OF COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES

CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS

SITE PHOTO

DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT. SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT. CONTINUE STRAIGHT. CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON. TAKE THE CT-20 W EXIT TOWARD E GRANBY/GRANBY. CONTINUE ONTO CT-20 W. USE THE LEFT 2 LANES TO TURN LEFT ONTO INTERNATIONAL DR. AT THE TRAFFIC CIRCLE, TAKE THE 1ST EXIT ONTO SEYMOUR RD. TURN LEFT ONTO CT-187 S. TURN RIGHT ONTO CT-189 S. SLIGHT RIGHT ONTO BROWN ST. TURN RIGHT ONTO CT-178 W. TURN LEFT ONTO CT-185 E. TURN RIGHT ONTO MOUNTAIN RD. TURN RIGHT ONTO ALBANY AVE. DESTINATION WILL BE ON THE RIGHT. ARRIVE AT BOBDL00129A.

SHEET INDEX

UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

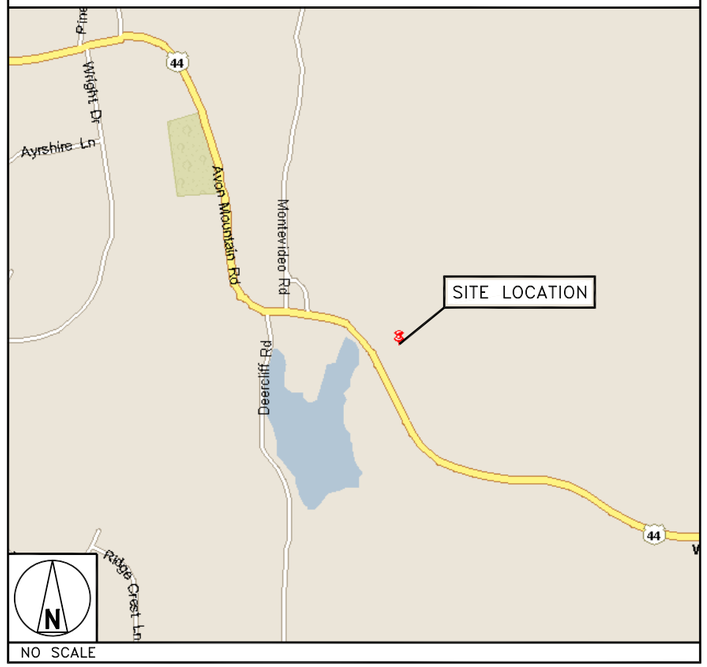
GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

VICINITY MAP



NO SCALE

dish wireless™

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD WILCOX
No. 23924
LICENSED
PROFESSIONAL ENGINEER

12/9/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
ANS	RMC	RMC

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/19/21	ISSUED FOR REVIEW
0	12/9/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149475.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00129A
3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

149475.001.01_WEST HARTFORD.dwg - Sheet:T-1 - User: hanlon - Dec 09, 2021 - 10:13am

TITLE EXCEPTIONS PERTINENT TO SURVEY

COMMONWEALTH LAND TITLE INSURANCE COMPANY COMMITMENT NO. CT15-005550-SH

4. RIGHTS OF WAY AND EASEMENTS IN A DEED DATED OCTOBER 6, 1954 AND RECORDED IN VOLUME 304 AT PAGE 311 OF THE WEST HARTFORD LAND RECORDS. DOES NOT AFFECT SUBJECT PROPERTY.

5. RESTRICTIONS SET FORTH IN A DEED DATED JUNE 23, 1965 AND RECORDED IN VOLUME 709 AT PAGE 465 OF THE WEST HARTFORD LAND RECORDS. AFFECTS SUBJECT PROPERTY BUT NOT PLOTTABLE.

6. RIGHTS TO FLOW AND REPAIR AS SET FORTH IN A DEED DATED SEPTEMBER 20, 1950 AND RECORDED IN VOLUME 334 AT PAGE 340 OF THE WEST HARTFORD LAND RECORDS. AFFECTS SUBJECT PROPERTY. SHOWN ON PLAN.

7. ACCESS EASEMENT DATED APRIL 16, 2001 AND RECORDED IN VOLUME 1044 AT PAGE 176 AS CORRECTED ON DEED DATED JUNE 20, 2001 AND RECORDED IN VOLUME 1057 AT PAGE 120 OF THE WEST HARTFORD LAND RECORDS. AFFECTS SUBJECT PROPERTY. SHOWN ON PLAN.

8. SPECIAL PERMIT DATED JULY 24, 2001 AND RECORDED IN VOLUME 2001 AT PAGE 420 OF THE WEST HARTFORD LAND RECORDS. DOES NOT AFFECT SUBJECT PROPERTY. SHOWN ON PLAN.

9. CONDITIONS SET FORTH IN A DEED DATED NOVEMBER 23, 2005 AND RECORDED IN VOLUME 1548 AT PAGE 300 OF THE WEST HARTFORD LAND RECORDS. DOES NOT AFFECT SUBJECT PROPERTY.

11. NOTES, NOTATION, EASEMENTS AND CONDITIONS AS SHOWN ON THE MAPS REFERENCED IN SCHEDULE A. AFFECTS PROPERTY. SHOWN ON PLAN.

12. NOTICE OF LEASE TO CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS DATED JUNE 23, 2005 AND RECORDED IN VOLUME 1701 AT PAGE 86. REFER TO ASSIGNMENT TO GRANN COMMUNICATIONS II, LLC DATED AUGUST 12, 2011 AND RECORDED IN VOLUME 1995 AT PAGE 222 OF THE WEST HARTFORD LAND RECORDS. AFFECTS SUBJECT PROPERTY. SHOWN ON PLAN.

13. MEMORANDUM OF LEASE TO CROWPOINT HOLDINGS, INC. DATED MARCH 8, 2005 AND RECORDED IN VOLUME 1681 AT PAGE 256. REFER TO ASSIGNMENT TO GRANN COMMUNICATIONS II, LLC DATED AUGUST 12, 2011 AND RECORDED IN VOLUME 1995 AT PAGE 222 OF THE WEST HARTFORD LAND RECORDS. AFFECTS SUBJECT PROPERTY. SHOWN ON PLAN.

17. NOTICE OF GROUND LEASE AGREEMENT TO GRANN COMMUNICATIONS II, LLC DATED AUGUST 12, 2011 AND RECORDED IN VOLUME 1995 AT PAGE 222 AS ASSIGNMENT OF RETAINMENT DATED OCTOBER 12, 2005 AND RECORDED IN VOLUME 1699 AT PAGE 300 OF THE WEST HARTFORD LAND RECORDS. AFFECTS SUBJECT PROPERTY. SHOWN ON PLAN.

18. SUBLEASE TO GRANN COMMUNICATIONS II, LLC DATED AUGUST 12, 2011 AND RECORDED IN VOLUME 1995 AT PAGE 222 OF THE WEST HARTFORD LAND RECORDS. AFFECTS SUBJECT PROPERTY. SHOWN ON PLAN.

19. BILL OF SALE TO GRANN COMMUNICATIONS II, LLC DATED AUGUST 12, 2011 AND RECORDED IN VOLUME 1995 AT PAGE 182 OF THE WEST HARTFORD LAND RECORDS. AFFECTS PROPERTY. SHOWN ON PLAN

20. NOTICE OF TOWER SITE LEASE TO GRANN BROADCASTING, LLC DATED AUGUST 12, 2011 AND RECORDED IN VOLUME 1995 AT PAGE 210 OF THE WEST HARTFORD LAND RECORDS. AFFECTS PROPERTY. SHOWN ON PLAN

21. UCC FINANCING STATEMENT FROM WESTCOM BROADCASTING TO AT&T AND A EQUIPMENT LEASING RECORDED OCTOBER 1, 1996 IN VOLUME 1333 AT PAGE 284 OF THE WEST HARTFORD LAND RECORDS. AFFECTS PROPERTY BUT NOT PLOTTABLE.

22. MORTGAGE FROM GRANN COMMUNICATIONS II, LLC TO REGIONS BANK IN THE ORIGINAL PRINCIPAL AMOUNT OF $500,000.00 DATED AUGUST 12, 2011 AND RECORDED IN VOLUME 1995 AT PAGE 214 OF THE HARTFORD LAND RECORDS. AFFECTS PROPERTY. SHOWN ON PLAN

23. ASSIGNMENT OF LEASES, RENTS AND CONTRACT RIGHTS FROM GRANN COMMUNICATIONS II, LLC TO REGIONS BANK DATED AUGUST 12, 2011 AND RECORDED IN VOLUME 1995 AT PAGE 224 OF THE WEST HARTFORD LAND RECORDS. AFFECTS PROPERTY. SHOWN ON PLAN

24. UCC FINANCING STATEMENT FROM GRANN COMMUNICATIONS II, LLC TO REGIONS BANK DATED AUGUST 12, 2011 AND RECORDED IN VOLUME 1995 AT PAGE 272 OF THE WEST HARTFORD LAND RECORDS. AFFECTS PROPERTY. SHOWN ON PLAN

25. LANDLORD CONSENT TO ENCUMBRANCE AND WAIVER AGREEMENT DATED AUGUST 12, 2011 AND RECORDED IN VOLUME 1995 AT PAGE 256 OF THE WEST HARTFORD LAND RECORDS. AFFECTS PROPERTY. SHOWN ON PLAN

26. MORTGAGE FROM NABUS BROADCASTING, LLC TO UCC LENDING SERVICES CORPORATION, AS AGENT IN THE ORIGINAL PRINCIPAL AMOUNT OF $4,000,000.00 DATED AUGUST 12, 2011 AND RECORDED IN VOLUME 1995 AT PAGE 276 OF THE WEST HARTFORD LAND RECORDS. AFFECTS PROPERTY. SHOWN ON PLAN

27. MORTGAGE FROM NABUS TOWER, LLC TO HOWARD F. TANNER IN THE ORIGINAL PRINCIPAL AMOUNT OF $100,000.00 DATED OCTOBER 8, 2021 AND RECORDED IN VOLUME 4,788.13 PAGE 330 OF THE WEST HARTFORD LAND RECORDS. AFFECTS PROPERTY. SHOWN ON PLAN

28. UCC FINANCING STATEMENT FROM NABUS TOWER, LLC TO HOWARD F. TANNER RECORDED OCTOBER 12, 2021 IN VOLUME 4,788.13 PAGE 344 OF THE WEST HARTFORD LAND RECORDS. AFFECTS PROPERTY. SHOWN ON PLAN

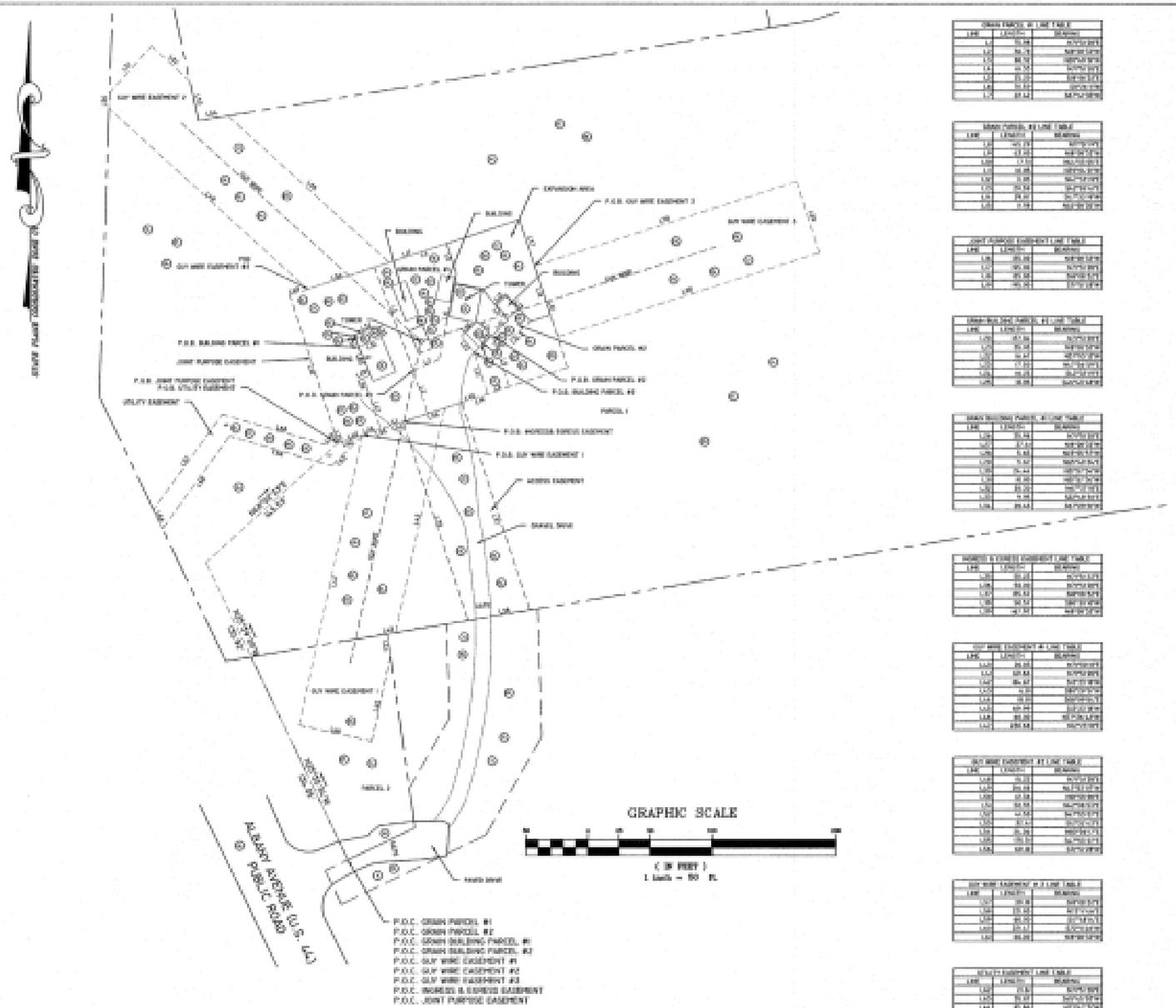
29. SUBORDINATION, NON-DISTURBANCE, ATTORNMENT AND ESTOPPEL AGREEMENT DATED OCTOBER 24, 2005 AND RECORDED IN VOLUME 4,801 ESTATE 344 OF THE WEST HARTFORD LAND RECORDS. AFFECTS PROPERTY BUT NOT PLOTTABLE.

NOTES

1. DRAWING IS BASED ON STATE PLANE COORDINATES.
2. COMPOUND AREA LIES ENTIRELY ON SUBJECT TRACT.

TOWER INFORMATION

BASE OF TOWER ELEVATION:	709 MSL
LATITUDE:	N41°47'48.140"
LONGITUDE:	W72°44'48.589"
TOWER HEIGHT:	91 FT.
ANTENNA HEIGHT:	344.4 FT.



GRANN PARCEL #1 LINE TABLE

LINE	LENGTH	BEARING
L1	75.00	N47°13'13"E
L2	50.00	S42°46'47"E
L3	75.00	S47°13'13"W
L4	50.00	N42°46'47"W

GRANN PARCEL #2 LINE TABLE

LINE	LENGTH	BEARING
L1	100.00	N47°13'13"E
L2	50.00	S42°46'47"E
L3	100.00	S47°13'13"W
L4	50.00	N42°46'47"W

JOINT PURPOSE EASEMENT LINE TABLE

LINE	LENGTH	BEARING
L1	25.00	N42°46'47"W
L2	100.00	N47°13'13"E
L3	25.00	S42°46'47"E
L4	100.00	S47°13'13"W

GRANN BUILDING PARCEL #1 LINE TABLE

LINE	LENGTH	BEARING
L1	37.50	N47°13'13"E
L2	25.00	N42°46'47"W
L3	37.50	S47°13'13"W
L4	25.00	S42°46'47"E

GRANN BUILDING PARCEL #2 LINE TABLE

LINE	LENGTH	BEARING
L1	37.50	N47°13'13"E
L2	25.00	N42°46'47"W
L3	37.50	S47°13'13"W
L4	25.00	S42°46'47"E

INGRESS & EGRESS EASEMENT LINE TABLE

LINE	LENGTH	BEARING
L1	30.00	N47°13'13"E
L2	50.00	N42°46'47"W
L3	30.00	S47°13'13"W
L4	50.00	S42°46'47"E

GUY WIRE EASEMENT #1 LINE TABLE

LINE	LENGTH	BEARING
L1	20.00	N47°13'13"E
L2	20.00	S42°46'47"E
L3	20.00	S47°13'13"W
L4	20.00	N42°46'47"W

GUY WIRE EASEMENT #2 LINE TABLE

LINE	LENGTH	BEARING
L1	20.00	N47°13'13"E
L2	20.00	S42°46'47"E
L3	20.00	S47°13'13"W
L4	20.00	N42°46'47"W

GUY WIRE EASEMENT #3 LINE TABLE

LINE	LENGTH	BEARING
L1	20.00	N47°13'13"E
L2	20.00	S42°46'47"E
L3	20.00	S47°13'13"W
L4	20.00	N42°46'47"W

UTILITY EASEMENT LINE TABLE

LINE	LENGTH	BEARING
L1	15.00	N47°13'13"E
L2	50.00	N42°46'47"W
L3	15.00	S47°13'13"W
L4	50.00	S42°46'47"E

P.O.C. GRANN PARCEL #1
P.O.C. GRANN PARCEL #2
P.O.C. GRANN BUILDING PARCEL #1
P.O.C. GRANN BUILDING PARCEL #2
P.O.C. GUY WIRE EASEMENT #1
P.O.C. GUY WIRE EASEMENT #2
P.O.C. GUY WIRE EASEMENT #3
P.O.C. INGRESS & EGRESS EASEMENT
P.O.C. JOINT PURPOSE EASEMENT

HSS

DATE: REVISED 02, 2023
DRAWN BY: SJS
CHECK BY: RJH
DWG. No.: 2022-171
SCALE: DECEMBER 19, 2013

HSS Land Surveyors, LLC
6815 Columbia Boulevard
Bloomsburg, PA 17815
V: 570.387.9900 F: 570.387.0355
Email: hssbob1996@yahoo.com

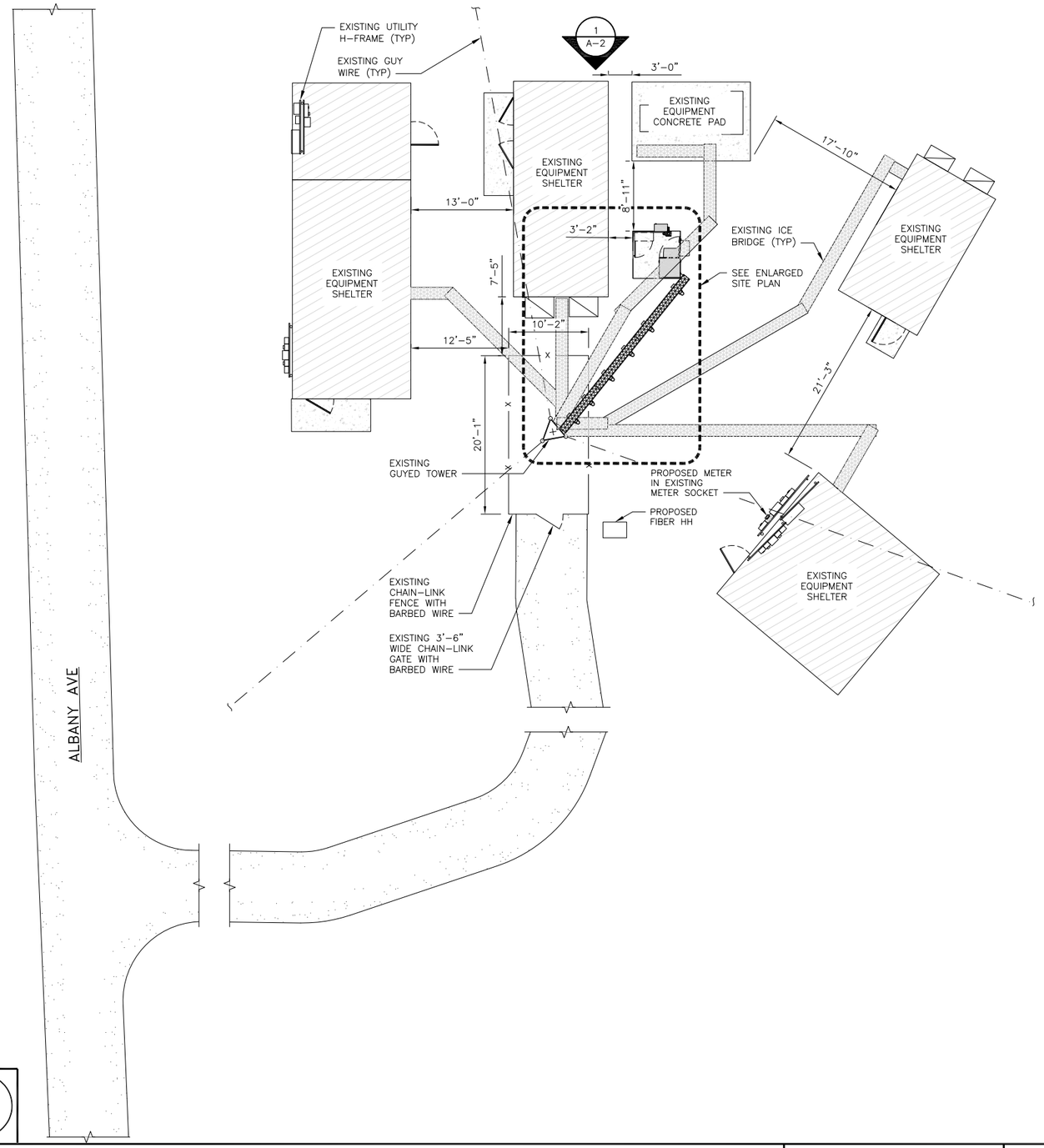
Tower Site

WEST HARTFORD
CT15879-A
TOWN OF WEST HARTFORD
HARTFORD COUNTY
CONNECTICUT

SHEET 2 of 2

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



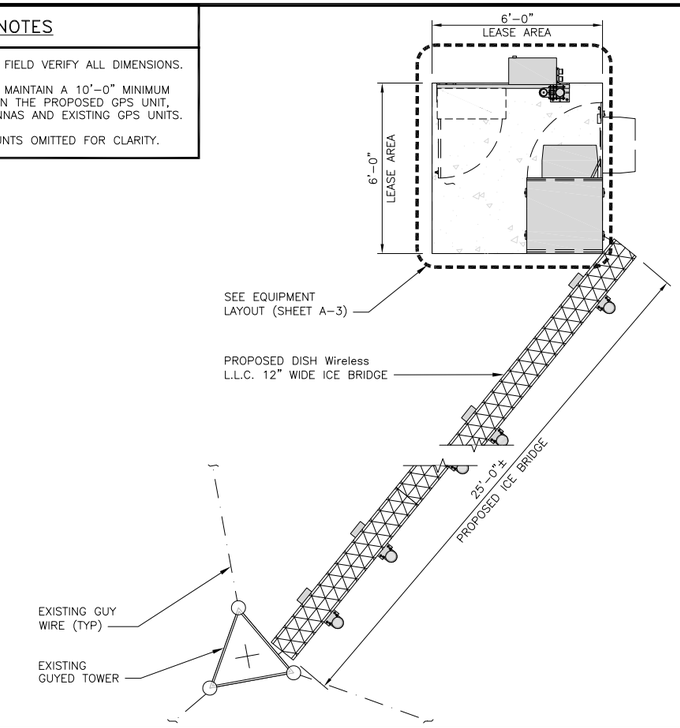
OVERALL SITE PLAN

8' 4' 0 8' 16'
1/8"=1'-0"

1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

2

NOT USED

NO SCALE

3

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
CHAD M. TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER

12/9/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
ANS	RMC	RMC

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/19/21	ISSUED FOR REVIEW
0	12/9/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149475.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00129A
3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE

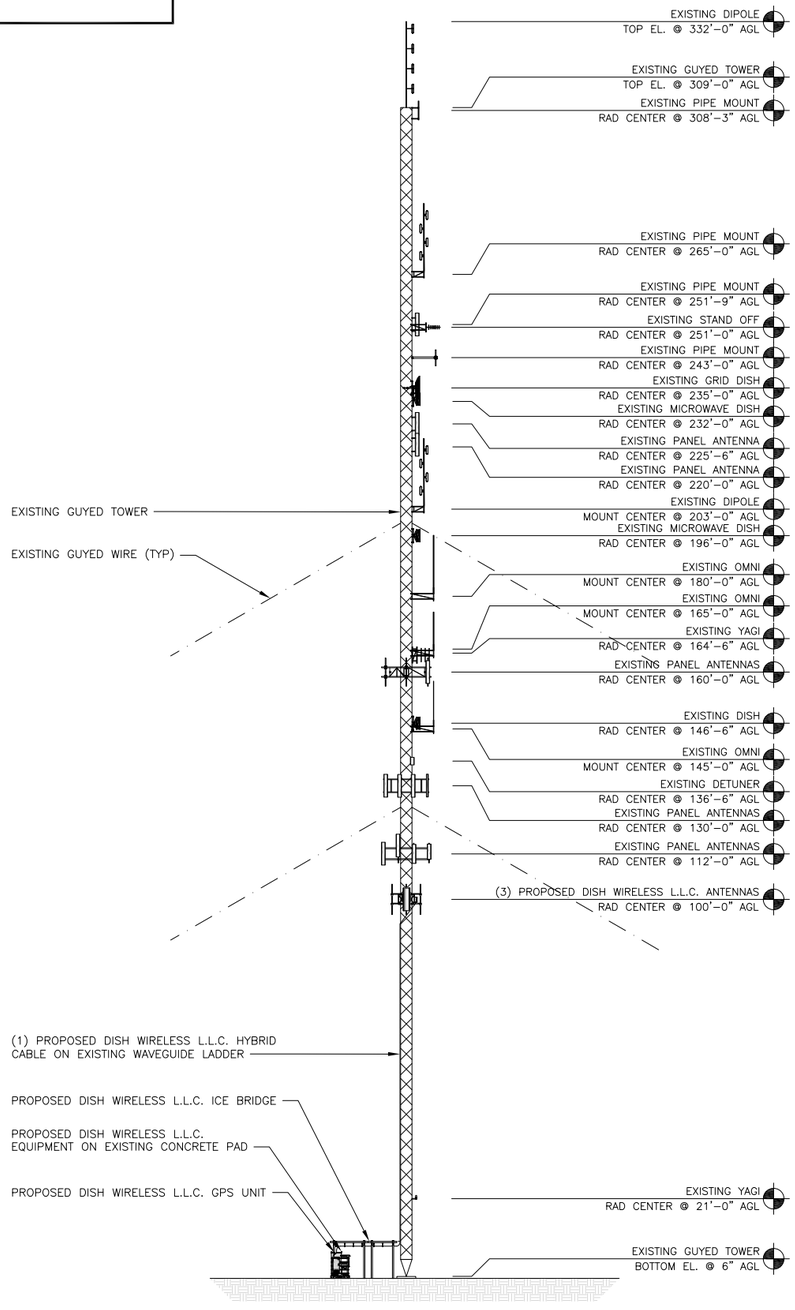
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

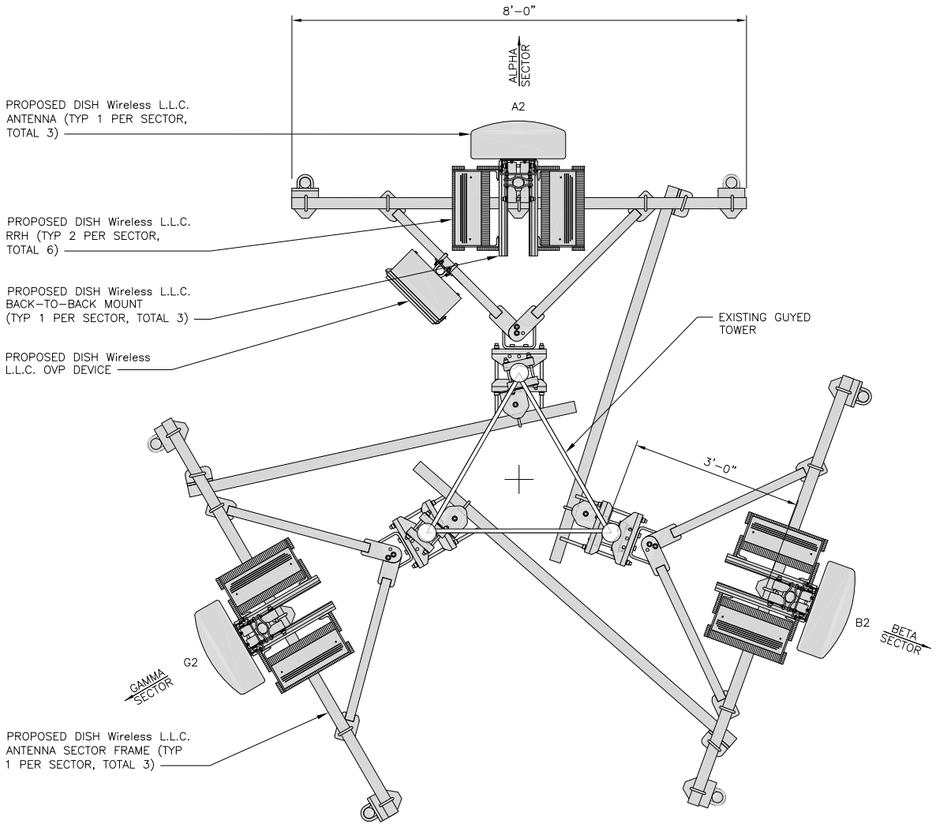
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED NORTH ELEVATION

20' 10' 0 20' 40'
1"=20'

1



ANTENNA LAYOUT

12" 6" 0 1' 2' 3'
3/4"=1'-0"

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS–MX08FRO665–21	5G	72.0" x 20.0"	0°	100'–0"	(1) HIGH–CAPACITY HYBRID CABLE (150' LONG)
BETA	B1	PROPOSED	JMA WIRELESS–MX08FRO665–21	5G	72.0" x 20.0"	110°	100'–0"	
GAMMA	G1	PROPOSED	JMA WIRELESS–MX08FRO665–21	5G	72.0" x 20.0"	240°	100'–0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025–B605	5G
	A1	FUJITSU – TA08025–B604	5G
BETA	B1	FUJITSU – TA08025–B605	5G
	B1	FUJITSU – TA08025–B604	5G
GAMMA	G1	FUJITSU – TA08025–B605	5G
	G1	FUJITSU – TA08025–B604	5G

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

ANTENNA SCHEDULE

NO SCALE

3

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA
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12/9/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
ANS	RMC	RMC

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/19/21	ISSUED FOR REVIEW
0	12/9/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

149475.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

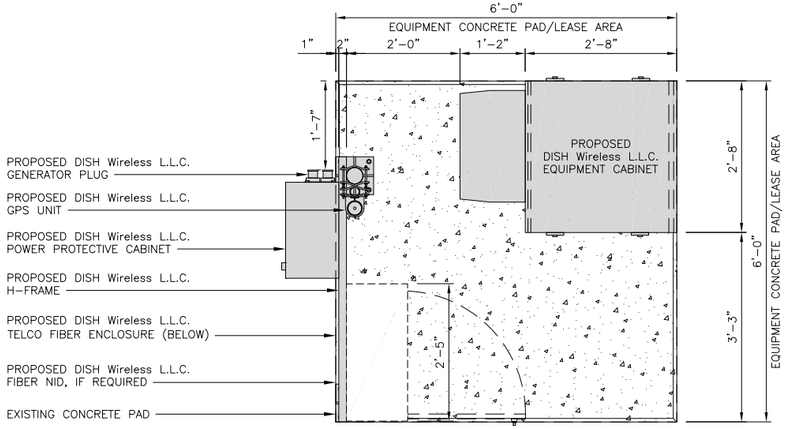
BOBDL00129A
3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

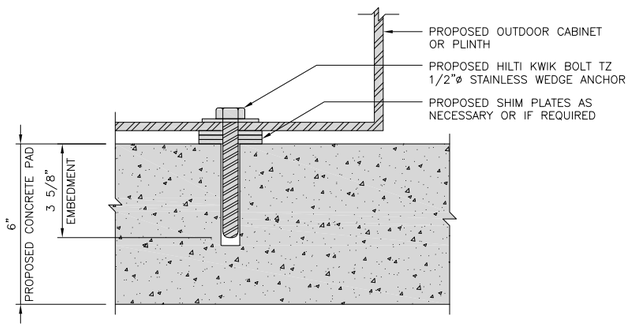
A-2



CONCRETE PAD EQUIPMENT PLAN

12" 9" 6" 3" 0 1' 2'
1"=1'-0"

1

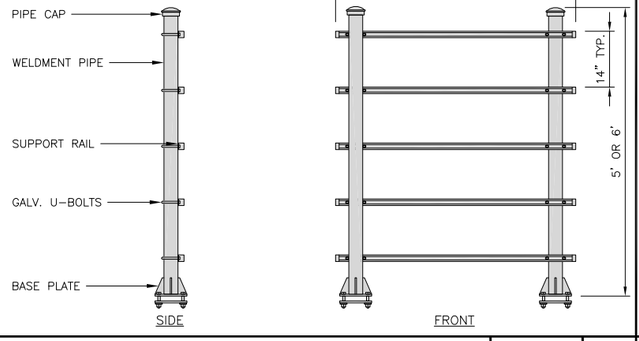


TYPICAL OUTDOOR EQUIPMENT TO CONCRETE SLAB ANCHORAGE

NO SCALE

2

COMMSCOPE MTC4045HFLD H-FRAME	
UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs

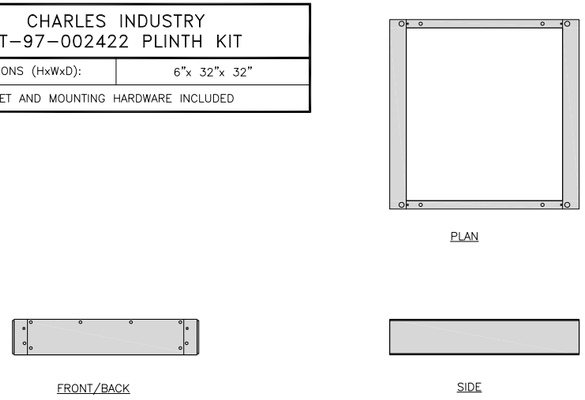


H-FRAME DETAIL

NO SCALE

3

CHARLES INDUSTRY LT-97-002422 PLINTH KIT	
DIMENSIONS (HxWxD):	6"x 32"x 32"
NOTE: GASKET AND MOUNTING HARDWARE INCLUDED	



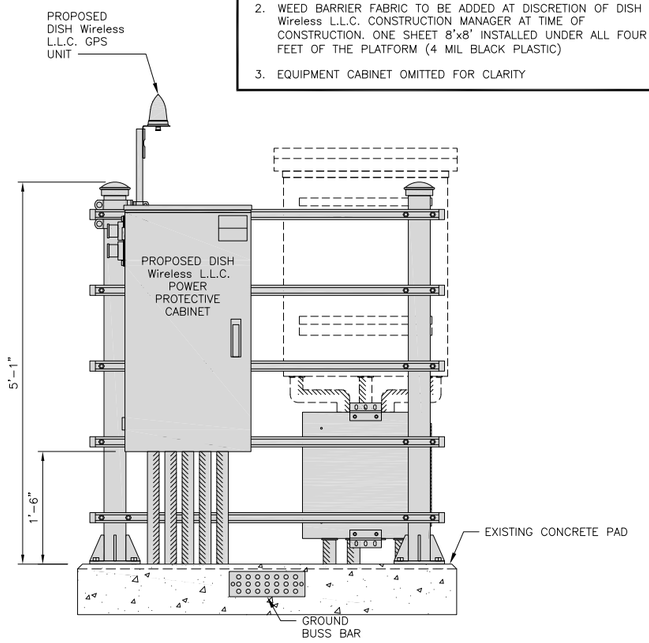
PLINTH DETAIL

NO SCALE

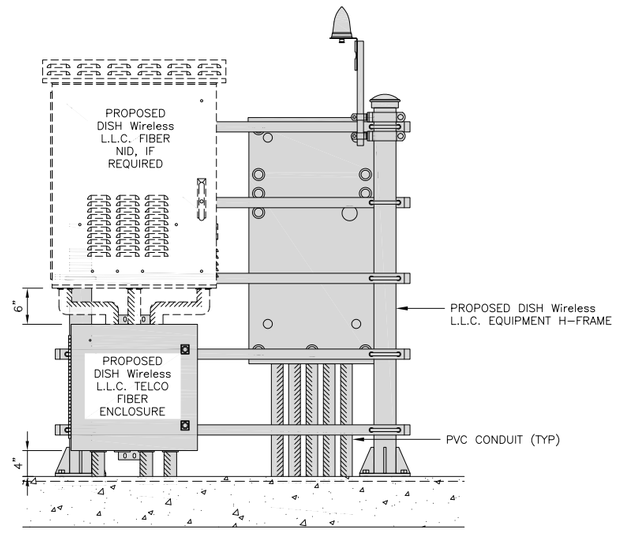
4

NOTES

1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH Wireless L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT CABINET OMITTED FOR CLARITY



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

12" 9" 6" 3" 0 1' 2'
1"=1'-0"

5

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CHAD WHITE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
12/9/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
ANS	RMC	RMC

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3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE

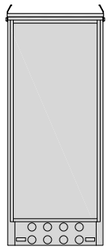
EQUIPMENT PAD AND H-FRAME DETAILS

SHEET NUMBER

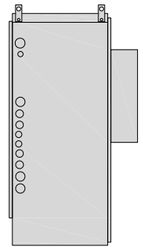
A-3

ENERSYS HVAC 2000005995	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HVAC	600W
TOTAL WEIGHT (EMPTY)	371 lbs

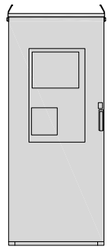
PLAN



BACK



SIDE

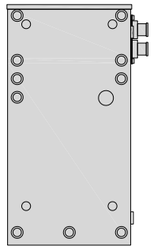


FRONT

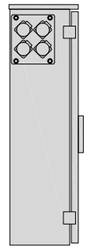
CABINET DETAIL | NO SCALE | 1

RAYCAP PPC RDIAC-2465-P-240-MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G

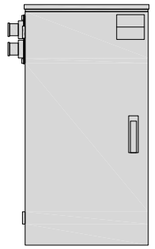
TOP



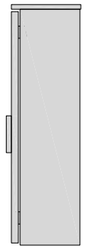
BACK



SIDE



FRONT



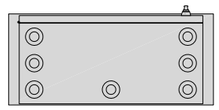
SIDE

POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

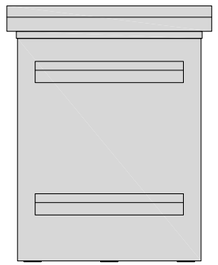
NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

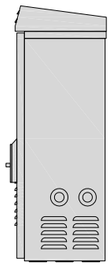
ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs



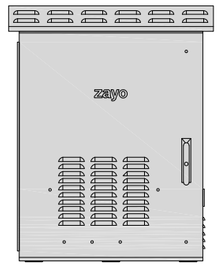
BOTTOM



BACK



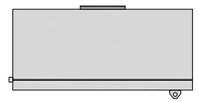
SIDE



FRONT

FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



FRONT

SIDE

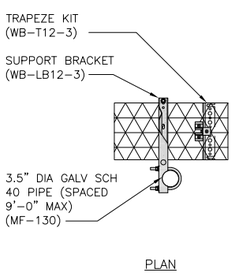
BACK

FRONT

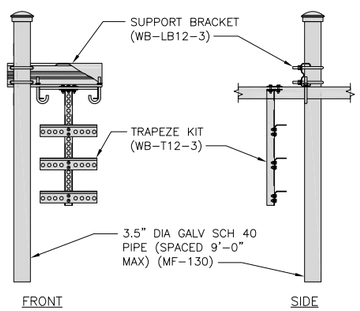
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

INCLUDED PRODUCTS:	
	WB-T12-3 TRAPEZE KIT, 3 RUNGS
	WB-LB12-3 SUPPORT BRACKET
	MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"



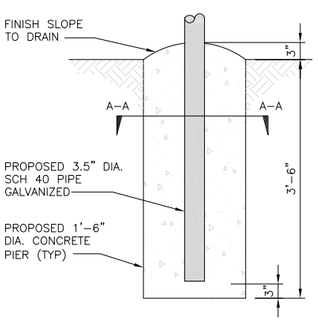
PLAN



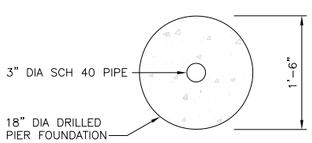
FRONT

SIDE

ICE BRIDGE DETAIL | NO SCALE | 7

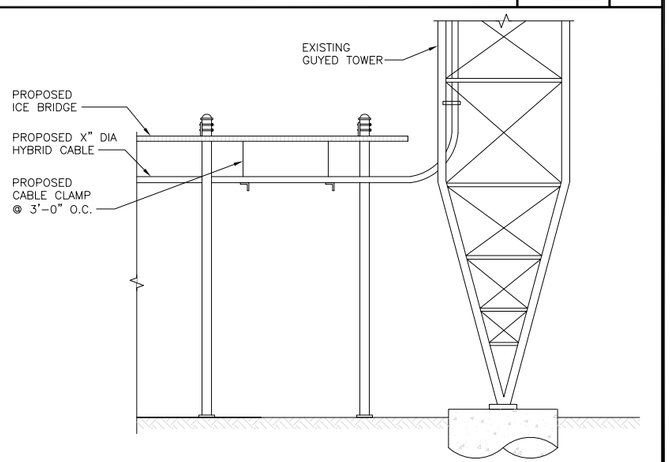


CONCRETE PIER



A-A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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12/9/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00129A
3114 ALBANY AVENUE
W HARTFORD, CT 06117

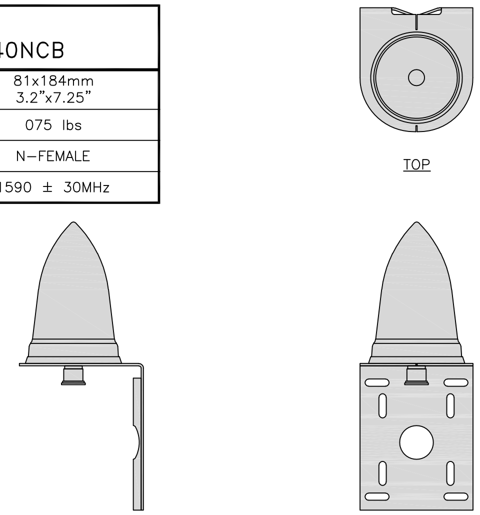
SHEET TITLE

EQUIPMENT DETAILS

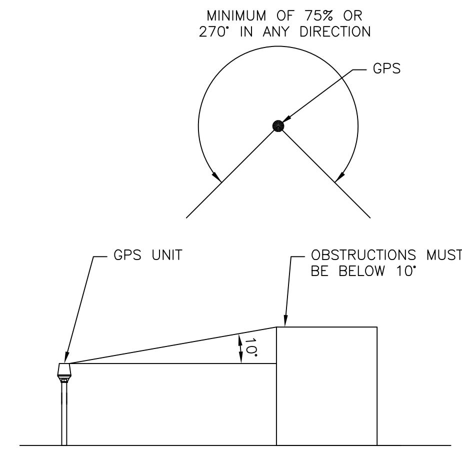
SHEET NUMBER

A-4

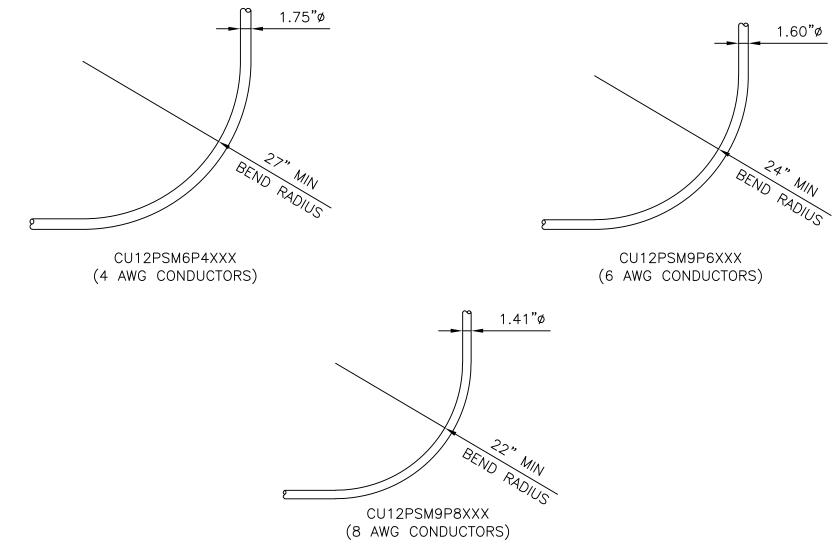
PCTEL GPSGL–TMG–SPI–40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N–FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL — NO SCALE — 1



GPS MINIMUM SKY VIEW REQUIREMENTS — NO SCALE — 2



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES — NO SCALE — 3

NOT USED — NO SCALE — 4

NOT USED — NO SCALE — 5

NOT USED — NO SCALE — 6

NOT USED — NO SCALE — 7

NOT USED — NO SCALE — 8

NOT USED — NO SCALE — 9

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12/9/21
B&T ENGINEERING, INC.
PEC.0001564
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IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
ANS	RMC	RMC

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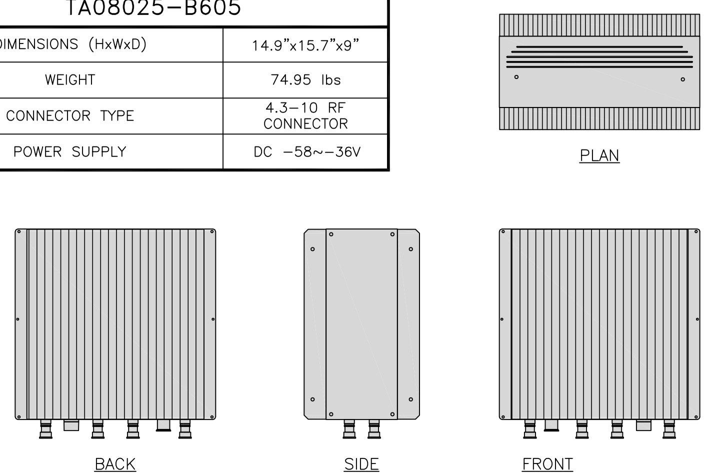
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

FUJITSU TRIPLE BAND TA08025-B605

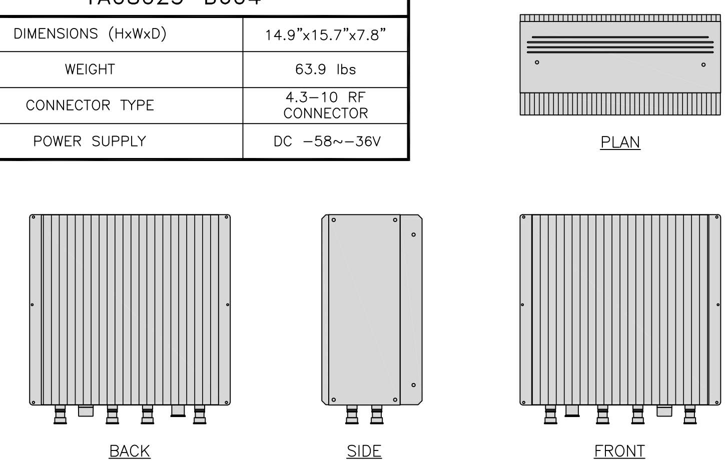
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



RRH DETAIL | NO SCALE | 1

FUJITSU DUAL BAND TA08025-B604

DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V

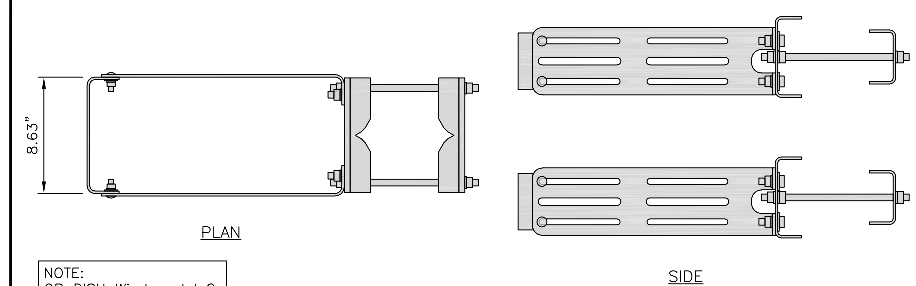


RRH DETAIL | NO SCALE | 2

COMMSCOPE RR-FA2 LARGE STABILIZER

DIMENSIONS (HxWxD)	16.4"x8.5"x18"
WEIGHT	39.2 lbs

DESIGN NOTES:
MOUNT WILL FIT LEGS UP TO:
- 5.6" ROUND
- 6.0" 60° ANGLE
- 4.5" 90° ANGLE

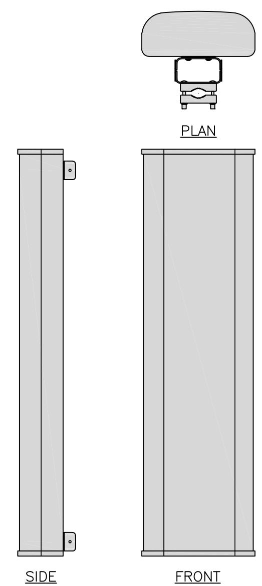


NOTE:
OR DISH Wireless L.L.C. APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

JMA MX08FRO665-21

DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



ANTENNA DETAIL | NO SCALE | 4

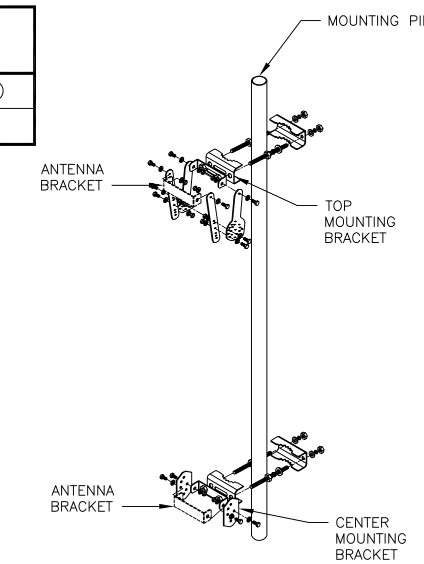
NOT USED | NO SCALE | 5

JMA ANTENNA MOUNT BRACKET #91900318

TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS
ANTENNA BRACKET NOT PART OF KIT

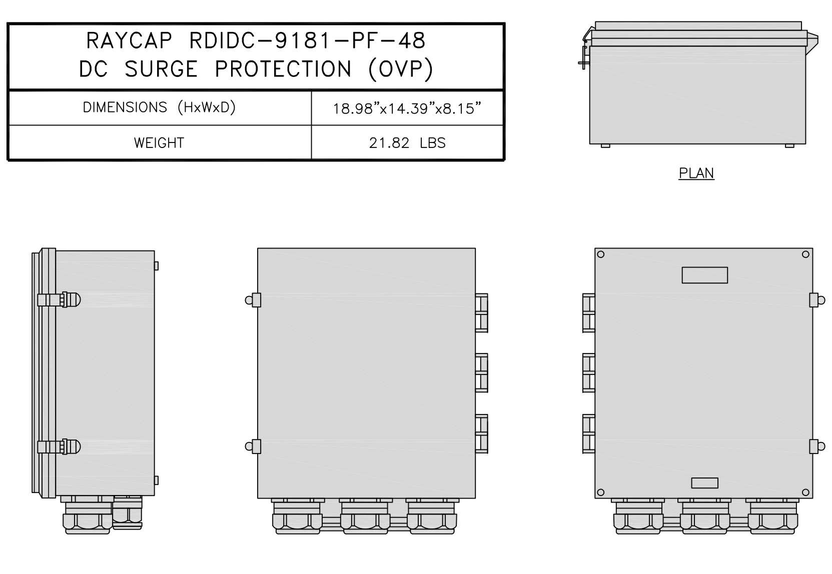
NOTE:
OR DISH Wireless L.L.C. APPROVED EQUIVALENT



ANTENNA BRACKET DETAIL | NO SCALE | 6

RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)

DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



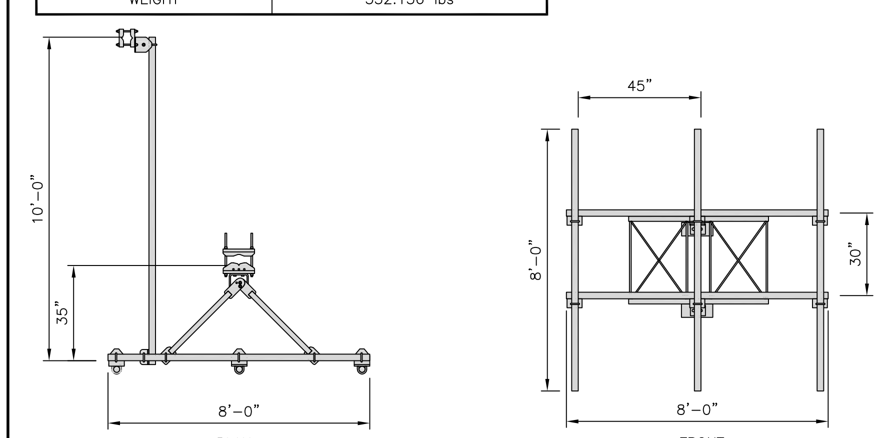
SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

NOT USED | NO SCALE | 8

COMMSCOPE V-FRAME MTC3975083

FACE SIZE	8'-0"
WEIGHT	352.136 lbs

NOTE:
OR DISH Wireless L.L.C. APPROVED EQUIVALENT



ANTENNA FRAME DETAIL | NO SCALE | 9

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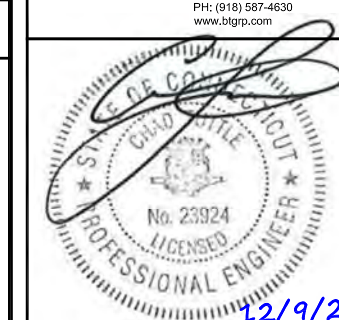

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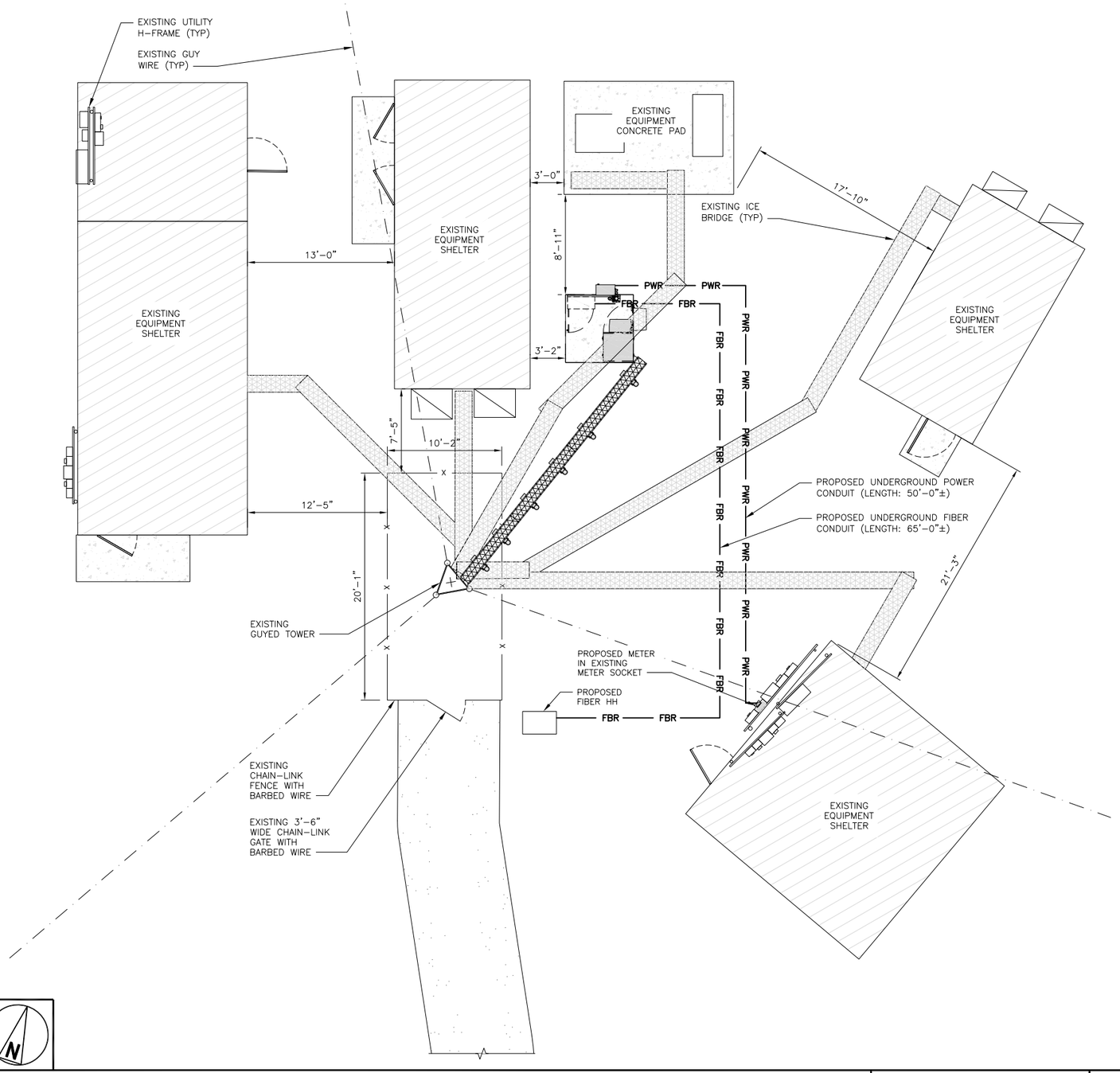
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS NOT AN OPTION, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.



UTILITY ROUTE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1

DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG

ELECTRICAL NOTES

NO SCALE

2

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STATE OF CONNECTICUT
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No. 23924
LICENSED
PROFESSIONAL ENGINEER
12/9/21
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
ANS	RMC	RMC

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER

149475.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00129A
3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE

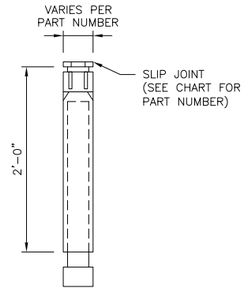
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

E-1

CARLON EXPANSION FITTINGS

COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N	E945NX	4"	5	8"
E945P	E945PX	5"	1	8"
E945R	E945RX	6"	1	8"

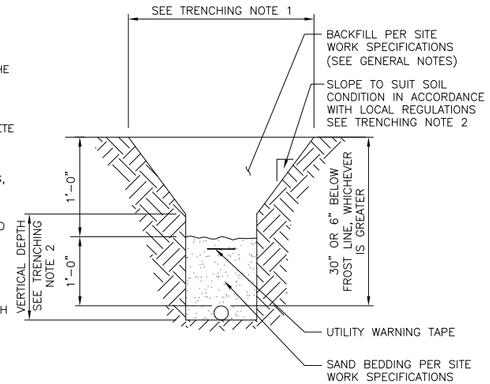


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

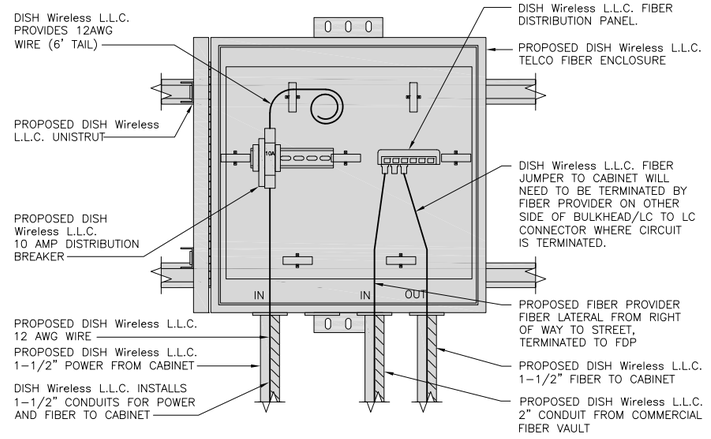
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

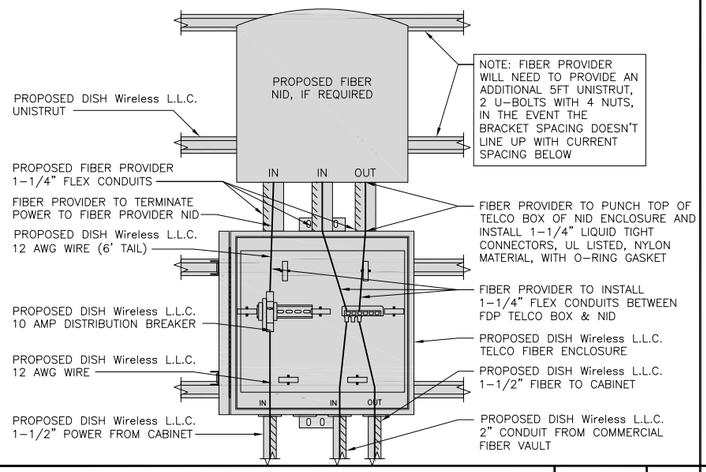
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
3. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



DARK TELCO BOX – INTERIOR WIRING LAYOUT | NO SCALE | 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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PROJECT INFORMATION

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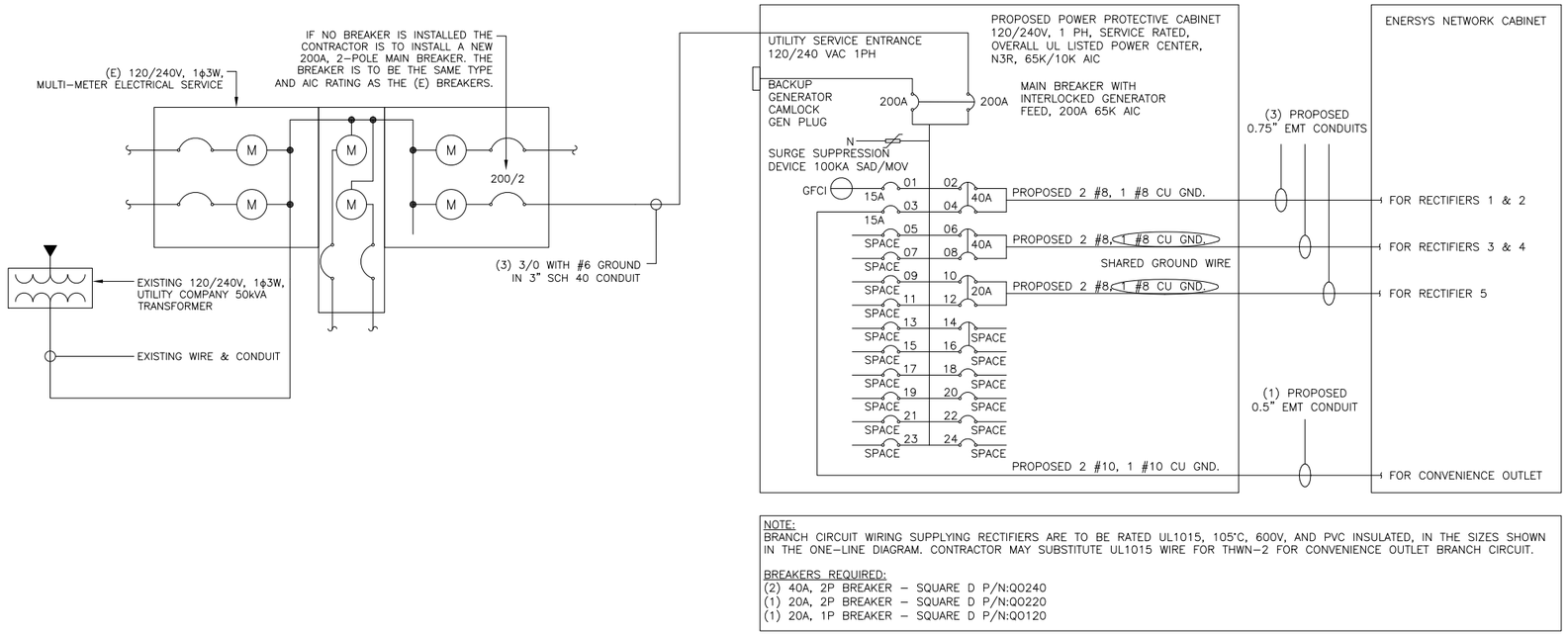
3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E-2



NOTE:
BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 600V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

BREAKERS REQUIRED:
(2) 40A, 2P BREAKER - SQUARE D P/N:QO240
(1) 20A, 2P BREAKER - SQUARE D P/N:QO220
(1) 20A, 1P BREAKER - SQUARE D P/N:QO120

NOTES

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUIT AND FEEDERS COMPLY WITH THE NEC (LISTED ON T-1) ARTICLE 210.19(A)(1) FPN NO. 4.

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.
0.5" CONDUIT - 0.122 SQ. IN AREA
0.75" CONDUIT - 0.213 SQ. IN AREA
2.0" CONDUIT - 1.316 SQ. IN AREA
3.0" CONDUIT - 2.907 SQ. IN AREA

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.

#10 - 0.0211 SQ. IN X 2	= 0.0422 SQ. IN
#10 - 0.0211 SQ. IN X 1	= 0.0211 SQ. IN <GROUND
TOTAL	= 0.0633 SQ. IN

0.5" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

RECTIFIER CONDUCTORS (3 CONDUITS): USING UL1015, CU.

#8 - 0.0552 SQ. IN X 2	= 0.1103 SQ. IN
#8 - 0.0131 SQ. IN X 1	= 0.0131 SQ. IN <BARE GROUND
TOTAL	= 0.1234 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.

3/0 - 0.2679 SQ. IN X 3	= 0.8037 SQ. IN
#6 - 0.0507 SQ. IN X 1	= 0.0507 SQ. IN <GROUND
TOTAL	= 0.8544 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC ONE-LINE DIAGRAM

NO SCALE | 1

PROPOSED ENERSYS PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	40A	3840		ENERSYS ALPHA CORDEX
ENERSYS GFCI OUTLET		180	15A	3	B	4			3840	RECTIFIERS 1 & 2
-SPACE-				5	A	6	40A	3840		ENERSYS ALPHA CORDEX
-SPACE-				7	B	8			3840	RECTIFIER 3 & 4
-SPACE-				9	A	10	20A	1920		ENERSYS ALPHA CORDEX
-SPACE-				11	B	12			1920	RECTIFIER 5
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						9500	9500	
200A MCB, 1ϕ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			9680		9680		VOLTAGE AMPS			
			81		81		AMPS			
			81				MAX AMPS			
			102				MAX 125%			

PANEL SCHEDULE

NO SCALE | 2

NOT USED

NO SCALE | 3

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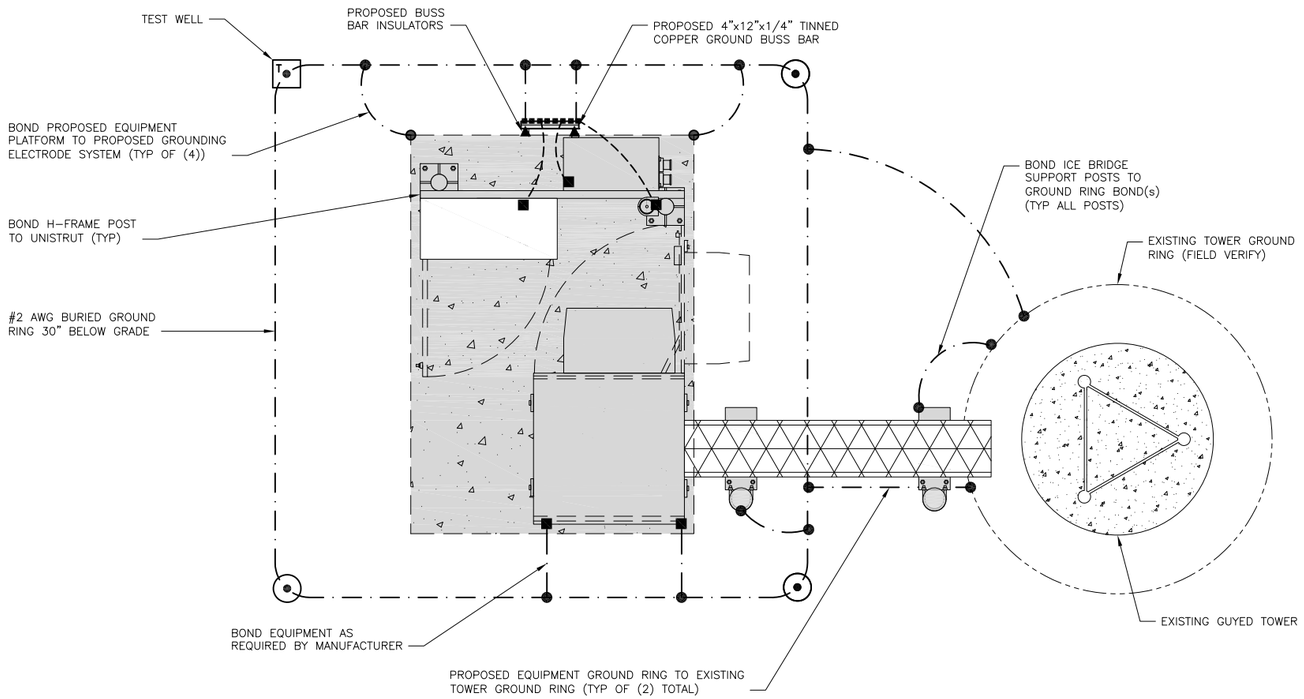
3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

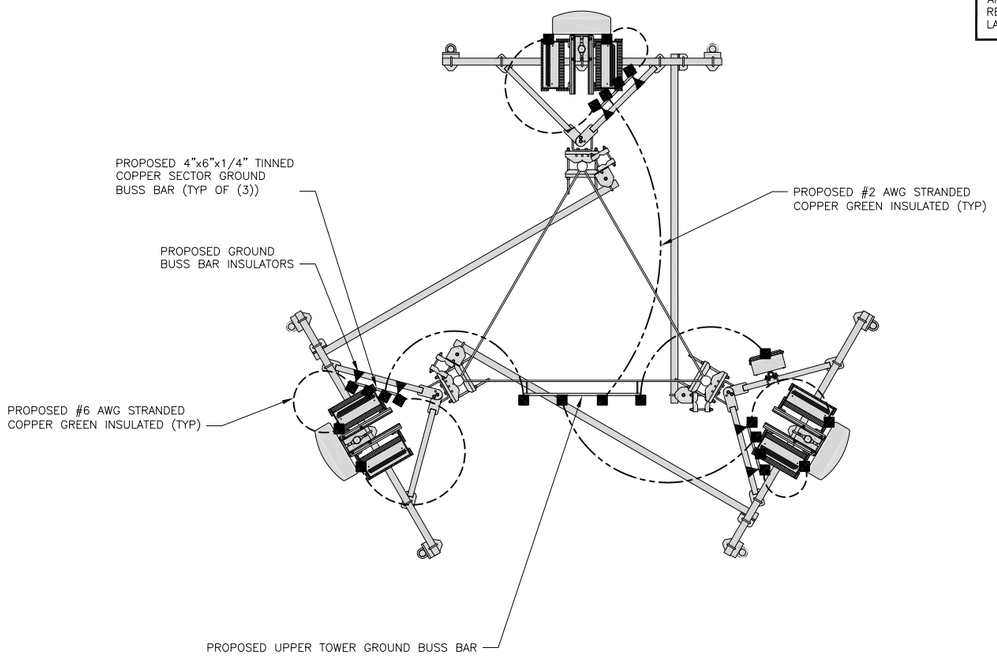
SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1

NOTES

ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE PURPOSES ONLY



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- #6 AWG STRANDED & INSULATED
- #2 AWG SOLID COPPER TINNED
- #2 AWG STRANDED & INSULATED
- BUSS BAR INSULATOR

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH Wireless L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

(D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

(F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

(G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.

(H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.

(I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.

(J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

(K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.

(L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

(M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE

(N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

(O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR

(P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO TOWER STEEL.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES | NO SCALE | 3

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3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE

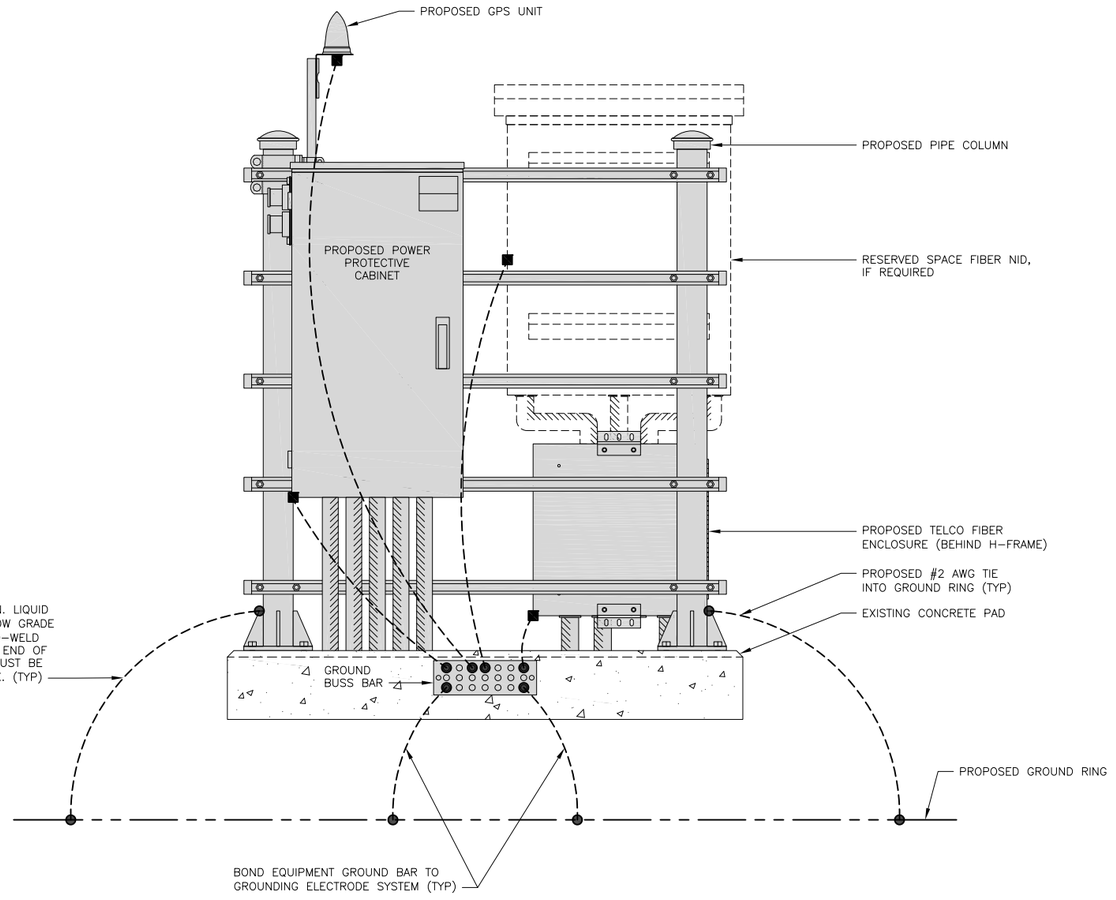
GROUNDING PLANS AND NOTES

SHEET NUMBER

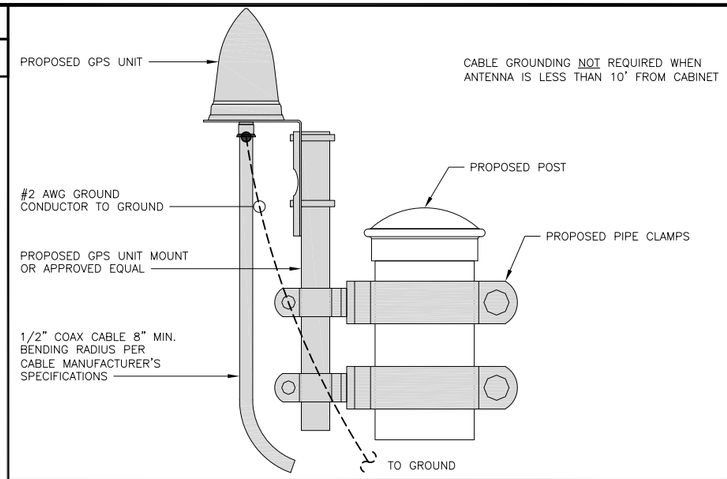
G-1

NOTES

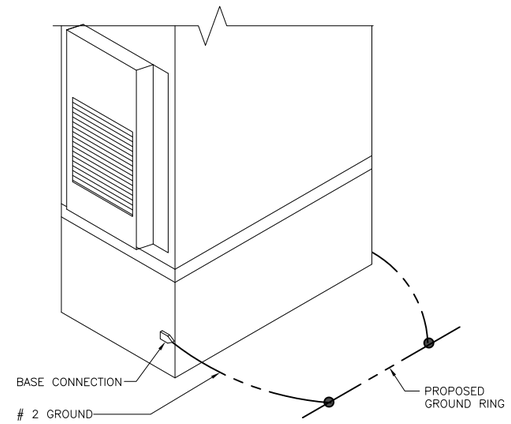
EQUIPMENT CABINET OMITTED FOR CLARITY



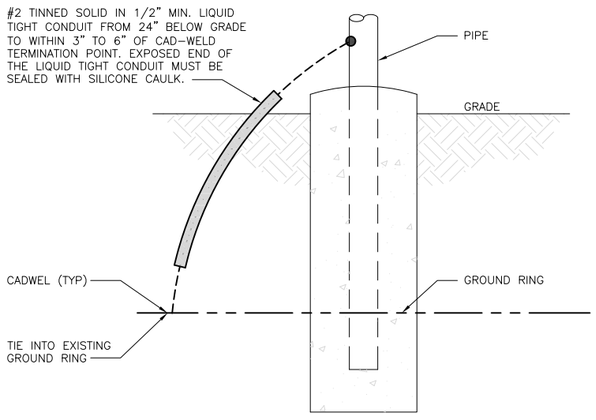
H-FRAME GROUNDING DETAIL | NO SCALE | 1



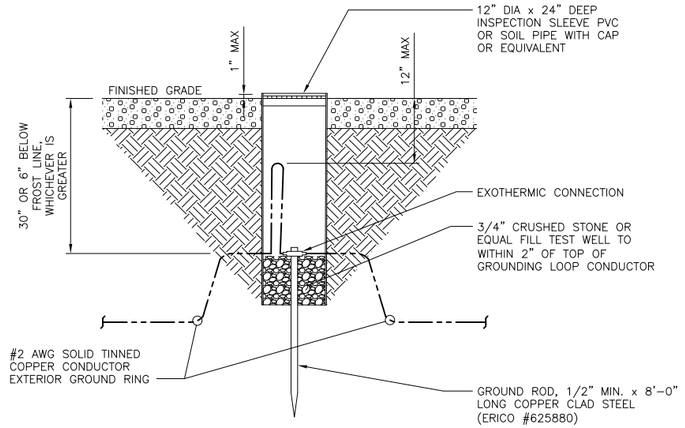
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



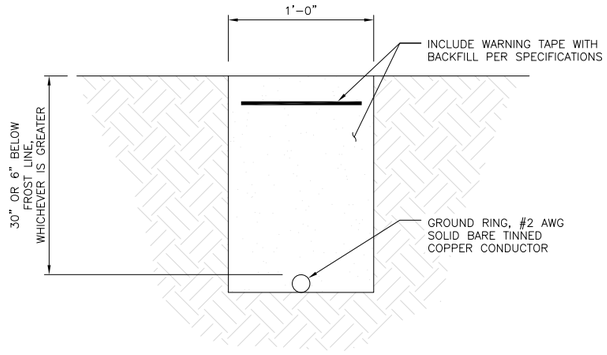
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE | NO SCALE | 5



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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SHEET TITLE

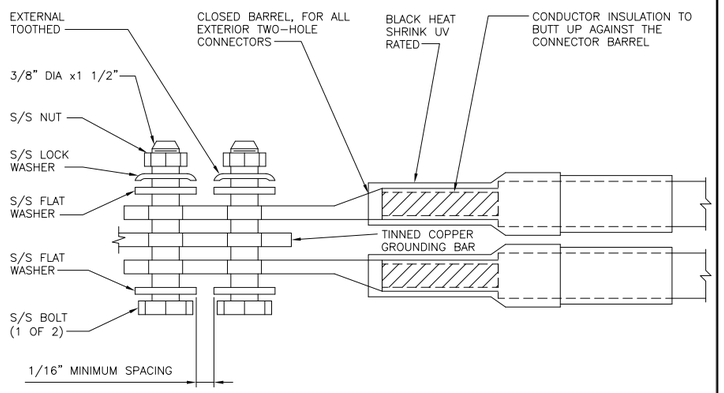
GROUNDING DETAILS

SHEET NUMBER

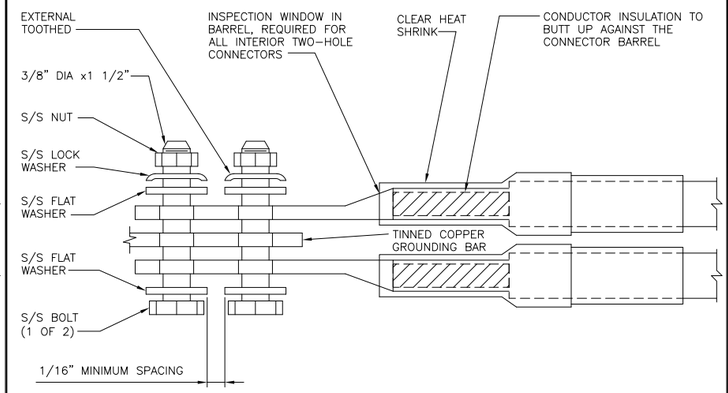
G-2

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR, ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

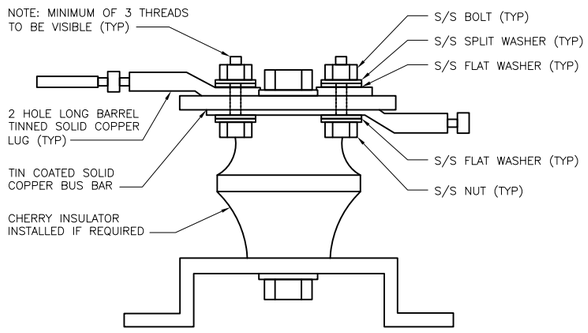
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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STATE OF CONNECTICUT
CHAD M. TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER

12/9/21

B&T ENGINEERING, INC.
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Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
ANS	RMC	RMC

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149475.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00129A
3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE

GROUNDING DETAILS

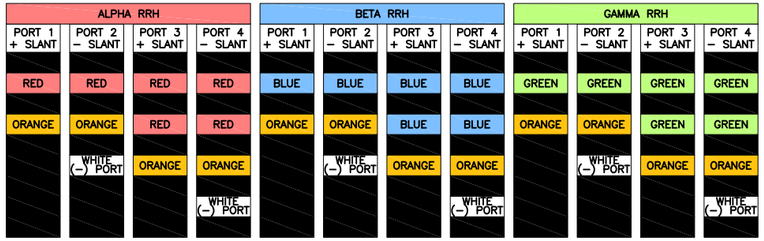
SHEET NUMBER

G-3

HYBRID/DISCREET CABLES — 3/4" TAPE WIDTHS WITH 3/4" SPACING

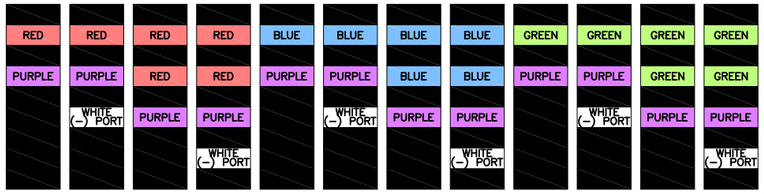
LOW–BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BAND)



MID–BAND RRH
(AWS BANDS N66+N70)

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)



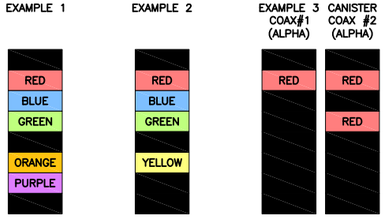
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW–BANDS AND MID–BANDS.

EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.



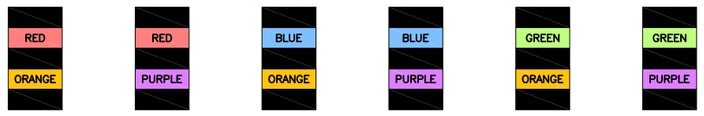
CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RD DETAILS. FINAL RFDS IS IN NEXSYSONE.

FIBER JUMPERS TO RRHs

LOW–BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.

POWER CABLES TO RRHs

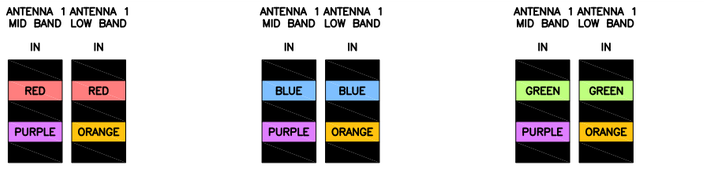
LOW–BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

RET CONTROL IS HANDLED BY THE MID–BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.

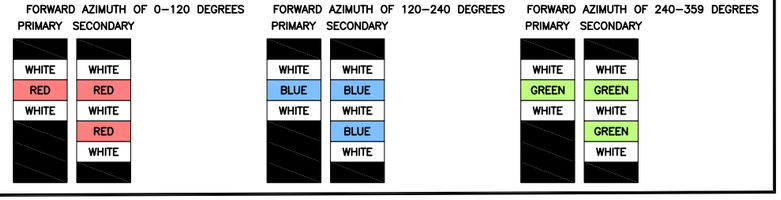
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



MICROWAVE RADIO LINKS

LINKS WILL HAVE A 1.5–2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.
ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.

MICROWAVE CABLES WILL REQUIRE P–TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID's.



RF CABLE COLOR CODES | NO SCALE | 1

LOW BANDS (N71+N26) OPTIONAL – (N29): ORANGE

AWS (N66+N70+H–BLOCK): PURPLE

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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STATE OF CONNECTICUT — CHAD M. WHITE — No. 23924 — LICENSED PROFESSIONAL ENGINEER

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00129A
3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1

LEGEND

EXOTHERMIC CONNECTION	
MECHANICAL CONNECTION	
BUSS BAR INSULATOR	
CHEMICAL ELECTROLYTIC GROUNDING SYSTEM	
TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM	T
EXOTHERMIC WITH INSPECTION SLEEVE	
GROUNDING BAR	
GROUND ROD	
TEST GROUND ROD WITH INSPECTION SLEEVE	T
SINGLE POLE SWITCH	$
DUPLEX RECEPTACLE	
DUPLEX GFCI RECEPTACLE	GFCI
FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8	F
SMOKE DETECTION (DC)	SD
EMERGENCY LIGHTING (DC)	
SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED-1-25A400/51K-SR4-120-PE-DDBTXD	
CHAIN LINK FENCE	— x — x — x — x —
WOOD/WROUGHT IRON FENCE	
WALL STRUCTURE	
LEASE AREA	
PROPERTY LINE (PL)	
SETBACKS	
ICE BRIDGE	
CABLE TRAY	
WATER LINE	— W — W — W — W — W —
UNDERGROUND POWER	— UGP — UGP — UGP — UGP — UGP —
UNDERGROUND TELCO	— UGT — UGT — UGT — UGT — UGT —
OVERHEAD POWER	— OHP — OHP — OHP — OHP —
OVERHEAD TELCO	— OHT — OHT — OHT — OHT —
UNDERGROUND TELCO/POWER	— UGT/P — UGT/P — UGT/P — UGT/P —
ABOVE GROUND POWER	— AGP — AGP — AGP — AGP — AGP —
ABOVE GROUND TELCO	— AGT — AGT — AGT — AGT — AGT —
ABOVE GROUND TELCO/POWER	— AGT/P — AGT/P — AGT/P — AGT/P —
WORKPOINT	W.P.
SECTION REFERENCE	XX / X-X
DETAIL REFERENCE	XX / X-X

ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL.	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
EW	EACH WAY
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISH(ED)
FLR	FLOOR
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FS	FINISH SURFACE
FT	FOOT
FTG	FOOTING
GA	GAUGE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GLB	GLUE LAMINATED BEAM
GLV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HGR	HANGER
HVAC	HEAT/VENTILATION/AIR CONDITIONING
HT	HEIGHT
IGR	INTERIOR GROUND RING
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NEC	NATIONAL ELECTRIC CODE
NM	NEWTON METERS
NO.	NUMBER
#	NUMBER
NTS	NOT TO SCALE
OC	ON-CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RF	RADIO FREQUENCY
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED ACCESS DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

dish wireless.

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No. 23924
LICENSED
PROFESSIONAL ENGINEER
12/9/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
ANS	RMC	RMC

RFDS REV #: 1

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00129A
3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE
LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.

4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).

5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.

10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER AUTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.

11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.

12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.

14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.

15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.

16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.

18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.

4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.

5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.

6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.

12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER

13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

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PROFESSIONAL ENGINEER

12/9/21

B&T ENGINEERING, INC.
PEC.0001564
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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00129A
3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.

3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.

4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.

5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:
- #6 BARS AND LARGER 2"
- #5 BARS AND SMALLER 1-1/2"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLAB AND WALLS 3/4"
- BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.

5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.

6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.

8. TIE WRAPS ARE NOT ALLOWED.

9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.

12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.

18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.

21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).

22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).

23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.

25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH Wireless L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".

30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00129A
3114 ALBANY AVENUE
W HARTFORD, CT 06117

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.

4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.

7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.

8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.

11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.

13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.

17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.

19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

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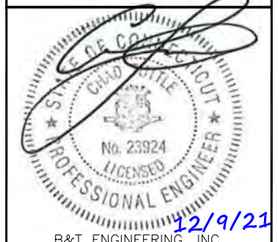

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